Penny & Giles

Non-Contacting Rotary Sensor

SRH761-2

- **Non-contacting, Hall-effect technology**
  - Long-life, high performance measurement, “Fit and Forget” for optimal cost of ownership
- **Fully Sealed Electronics**
  - Shaft is isolated from Electronics to ensure absolute integrity in any environment
- **Voltage, Current and PWM output options**
  - Customer selectable outputs for seamless integration with your control system
- **Zinc-aluminum alloy body with IP68 and IP69K sealing**
  - Rugged Design with engineered polymer bearings enabling 2kg side load capability, for reliable measurement in harsh environments, facilitating automated operation
- **Single or Dual output configurations**
  - Industry leading dual die sensor technology offers dual redundancy to suit the needs of safety-rated systems (e.g. ISO11452, IEC61508)

- **Electrical protection to ISO7637 and ISO11452**
  - Providing confidence in operation and reducing the need for replacement
- **MTTF’d >150 years**
  - Safety first for “piece of mind”

With its non-contacting operation, mechanical and electrical protection, and output redundancy options, the SRH76x range of shaft-operated rotary position sensors offer designers the optimal combination of performance, safety and cost.

Developed and tested specifically for reliability in the harshest of environments, the SRH76x is will run directly from 12 or 24Vdc battery systems, its internal circuitry providing transient protection to ISO7637 test pulse 1-5.

With a seal and bearing life in excess of 20 million operations, the sensor’s shaft and magnet are mounted in a blind cavity, ensuring a best in class IP67, IP68 and IP69K electronics sealing.

Standard features include; <±0.4% linearity and 12-bit resolution, an industry standard M12 connector interface, M6 mounting holes, and a choice between voltage (0.5-4.5Vdc, 0.2-4.8Vdc or 0-10Vdc), current (4-20mA), or digital PWM (244, 500 or 1000Hz) outputs.

Our customer selectable working angle from 20° to 360° ensures optimised 12-bit resolution and full-scale output signal over the working angle for maximum output sensitivity.

SPECIFICATIONS

ELECTRICAL	
MEASUREMENT RANGE	As per configuration code, minimum 0-20°, maximum 0-360° in 1° increments
SUPPLY VOLTAGE	13.5-30Vdc unregulated for A2 option, 9-30Vdc unregulated for all other options
SUPPLY CURRENT (SINGLE OR DUAL OUTPUT)	≤30mA (+ output current for each 4-20mA output)
SUPPLY REVERSE POLARITY PROTECTION	Yes
SHORT-CIRCUIT PROTECTION	
OUTPUT TO GND	Indefinite (30mA maximum per channel)
OUTPUT TO SUPPLY	Indefinite (30mA maximum per channel)
OVER-VOLTAGE PROTECTION	Up to 40Vdc at ambient temperature
POWER-ON SETTLEMENT	≤1s
RESOLUTION	≤0.025% of measurement range (12-bit)
TEMPERATURE COEFFICIENT	<±100 ppm/°C (A1, A2, A5, P1, P2 and P3) <±200 ppm/°C (A3 option only)
LINEARITY	≤±0.4%
VOLTAGE OUTPUTS	
OUTPUT RANGE	A1 – Absolute voltage 0.5V-4.5V dc (±3%) over measurement range A2 – Voltage 0.2V-9.8V dc (±0.1V) A5 – Absolute voltage 0.2V-4.8V dc (±3%) over measurement range
MONOTONIC RANGE	A1 – 0.25V – 4.75V nominal A5 – 0.10V – 4.90V nominal
LOAD RESISTANCE OUTPUT NOISE	10kΩ min. resistive to GND
INPUT/OUTPUT DELAY EXAMPLE OF OUTPUT	<1mV rms
LAW	<3.5ms A1 with clockwise output configuration assumed
PWM OUTPUTS (PX)	
PWM FREQUENCY	P1: 244Hz ±20% over temperature range P2: 500Hz ±20% over temperature range P3: 1000Hz ±20% over temperature range
PWM LEVELS (9-30Vdc SUPPLY)	0V and 5V ±3% nominal
DUTY CYCLE	10% – 90% over measurement range
MONOTONIC RANGE	5% and 95% nominal
RISE/FALL TIME	20µs
LOAD RESISTANCE	10kΩ min. resistive to GND
PWM OUTPUT CHARACTERISTICS	
MECHANICAL	
MECHANICAL ANGLE	360° continuous
MAXIMUM OPERATING SPEED	3600°/s
LIFE	>20 million operations of 150° sweep
SHAFT SIDE LOAD (DYNAMIC)	2kg mounted on sensor shaft – tested to 3 million operations of 150° sweep
WEIGHT	600g maximum
MOUNTING	Three tapped holes (M6 x 1 screws) or three through holes (to clear M6 or x ¼ UNC screws) with tightening Torque 10Nm Maximum
ENVIRONMENTAL AND LEGISLATIVE	
OPERATING TEMPERATURE RANGE	-40°C to +85°C
STORAGE TEMPERATURE RANGE	-50°C to +85°C
HUMIDITY	EN 60068-2-30 severity Db (55°C, 93%RH)
WATER AND DUST INGRESS	IP69K, IP68, IP67 with appropriate mating connector fitted
SALT SPRAY	EN 60068-2-52 test Kb severity 2 (72h)
VIBRATION (RANDOM)	BS EN 60068-2-64; 1995 - 14gn rms, 20-2000Hz
DROP/IMPACT SHOCK	2500g impact
MTTF'd	> 150 years

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