The SRH520CN contactless rotary sensor is a development of the Penny + Giles SRH501/2P model, with additional integrated electronics to provide a CAN bus interface according to ISO/DIS 11898.

Model SRH520CN is designed to meet the harsh operating requirements in heavy duty industrial position sensing applications, including construction, agricultural, military and utility vehicles, as well as a variety of uses in steelworks, marine equipment and power generating plants. This model has shaft side protection to IP69K, with minimum IP67 protection at the rear when the mating connector is attached and fully engaged.

The SRH520CN rotary sensor operates from a 9-30Vdc unregulated supply and has a choice of two configuration modes - J1939 or CANopen.

- **J1939 option**
  The J1939 option is factory set, with the following parameters selected from the order code in the technical data sheet:
  - Direction
  - Baud Rate
  - Node ID
  - Frame rate

- **CANopen option**
  The CANopen option is customer configurable, with a protocol according to CIA standard DS 301, and supports the device profile for encoders - DS 406. Baud rate and Node ID should be selected from the order code in the technical data sheet.

The SRH520CN incorporates a 14bit non-contact Hall effect sensor with microprocessor control - offering 0.022° resolution.

### Key Features
- Contactless - Hall effect technology
- J1939 or CANopen output
- Measurement range 360°
- 14 bit resolution (0.022°/LSB)
- CW or ACW output
- Rugged housing design, in marine grade aluminium
- Superior shaft strength
- Shaft sealing to IP69K; connector sealing to IP67
- M12 connector option for easy installation
- World leading availability
3 HOLES Ø6.5 THRU EQUI-SPACED ON A Ø76.0 PCD

3 HOLES M6x1 THRU EQUI-SPACED ON A Ø76.0 PCD

FIG 1

MID POINT OF ELECTRICAL ANGLE

OUTPUT INCREASES FOR CW UNIT WHEN VIEWED ON SHAFT

OUTPUT INCREASES FOR ACW UNIT WHEN VIEWED ON SHAFT

SHAFT FLAT

CABLE EXIT

90°

FIG 1 IS MID ELECTRICAL ANGLE WHEN SHAFT FLAT IS FACING TOWARDS AND PERPENDICULAR TO THE CABLE EXIT. (AS SHOWN)
SRH520CN PERFORMANCE SPECIFICATION

ELECTRICAL DATA

Measurement range: 360°
Supply voltage: 9-30V dc unregulated
Supply current: <80mA
Short Circuit Protection: All connections to all connections
Power On Settlement: <1s
Resolution: 14 bit (0.022° / lsb)
Temperature coefficient: <±25ppm/°C
Over Voltage Protection: Up to 40V
Non-Linearity: <±0.2%

OUTPUT

Direction: J1939 - factory set (see order code)
Input Noise: CANopen - customer configurable
Output Noise: +/- 1 Bit
Input / Output Delay: Max = selected frame rate

MECHANICAL DATA

Weight: 265g (Without Cable)
Mechanical angle: 360°, continuous
Operating Torque MAX: 1000 g cm
Mounting: Tapped 3 x M6 screws, Through Holes 3 x M6 or ¼ UNC
Shaft velocity MAX: 3600°/sec
Phasing: Sensor is at Mid Electrical Angle when shaft flat is facing towards and perpendicular to the cable exit ±5°, see FIG 1

ENVIRONMENTAL

Operational temperature range: -40 to 85°C with Vsupply = 9Vdc
Determine upper temperature limit by 1.7°C for each 1V increase in Vsupply from 27Vdc. (FIG 2)

Life: 20 Million operations, tested over 150° sweeps
Shaft Side Load: 2kg Mounted on sensor shaft Tested 3 million cycles

ELECTRICAL DATA

Input / Output Delay: Max = selected frame rate

FIG 2: MAX OPERATING TEMPERATURE DERATING

FOR J1939 DATA REFER TO P&G DOC: PGS J1939
FOR CAN OPEN DATA REFER TO P&G DOC: PGS CAN OPEN

PENNY + GILES

SRH520CN

PART NUMBER: SRH520CN

SEALING

Shaft seal & Rear cap seal - IP69K and IP68, Connector IP67 (When mated to connectors X61-242)
Contactless

SHAPING

Sensor is at Mid Electrical Angle when shaft flat is facing towards and perpendicular to the cable exit ±5°, see FIG 1

TESTED TO:

Storage temperature: -55 to 125°C
Vibration: BS EN 60068-2-64; 1995 Sec 8.4 (31.4gn rms) 20 to 2000Hz Random
Shock: 3m drop onto concrete
EMC: Complies to Directive 2004/108/EC - RF IMMUNITY TO 100V/M
Shock: 3m drop onto concrete
Vibration: BS EN 60068-2-64; 1995 Sec 8.4 (31.4gn rms) 20 to 2000Hz Random
Humidity: BS EN 60068-2-30; 2005 Severity Db (55°C, 93%RH)

All screw threads to BS3643 PT.2: To BS1134: PT2. All machined surfaces to be surface texture values in micrometres (μm)

Tolerances: In-line with Penny & Giles Standards 55-301

All dimensions shown are nominal +/− 0.1mm. All dimensional values are in inches except as shown.

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MOUNTING, CONNECTION & CABLE OPTIONS

M12 CONNECTOR (IP67)

SENSOR MTG DETAILS

3 HOLES DRILL AND TAP M6 x 1.1/4 UNC

3 HOLES DRILL Ø6.5 THRU

M12 MATING CONNECTOR (UNDER SEPARATELY)

CABLE TYPE

2 X 0.25 + 2 X 0.34mm
PUR (UL / CSA)

M12 MATING CONNECTOR
BODY - AL ALLOY 5083
SHAFT - 316 SS

BODY - MIL-DTL-81706B
MIL-DTL-5541F

M12 CONNECTOR IP67
2 metre long No X61-242-001

5 metre long No X61-242-004

10 metre long No X61-242-006

MOUNTING, CONNECTION & CABLE OPTIONS

CABLE TYPE

2 X 0.25 + 2 X 0.34mm
PUR (UL / CSA)

CABLE TYPE

2 X 0.25 + 2 X 0.34mm
PUR (UL / CSA)

SEAL PROJECTIONS TO BN-1 SHOWN AS AID TO MANUFACTURING ONLY TO BE INCLINED ON MANUFACTURING DRAWING IF CONTROL DIMENSIONS (Kc) ARE SPECIFIED THEY ARE TO BE COMPLIANT WITH BS3643 PART 2 AND BS1134 PART 2. ALL MACHINED SURFACES TO BE UNLESS STATED.

EXTERNAL CLASS: 6g
INTERNAL CLASS: 6H

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