

**METRIC**  
IF IN DOUBT ASK

ISS	DATE	DRAWN	ECR No.	CHK	APP
5	25/01/10	B.D	10569/4	AMR	MWB

**SRH280P Performance**

**Electrical Data**  
 Measurement range 20° - 360° in 1° Increments  
 Supply voltage 9V to 30Vdc Unregulated and 5Vdc ±0.5Vdc Regulated  
 Supply current ≤12.5mA  
 Supply reverse polarity protection Yes  
 Short circuit protection output to GND Yes  
 In 5V regulated mode only  
 Over voltage protection Up to 40V (-40 to +60°C)  
 Power on settlement <1S  
 Resolution 12 Bit (0.025% of measurement range)  
 Non-linearity ≤±0.4%  
 Temperature coefficient <±30ppm/°C

**Output (See Fig 2)**  
 Options Ratioetric analogue, PWM or Absolute Analogue  
 Direction Factory programmed to increase or decrease with CW shaft rotation

**Analogue Output Option (0.5V - 4.5V)**  
 Voltage output range (9-30V Supply) Absolute voltage from 0.5V to 4.5V over measurement range (±3%)  
 Voltage output range (5V Supply) Ratioetric output voltage from 10% to 90% (±1%) of V<sub>S</sub> supply over measurement range  
 Monotonic range 0.25V (5%) and 4.75V (95%) nominal

**Analogue Output Option (0.1V - 4.9V)**  
 Voltage output range (9-30V Supply) Absolute voltage from 0.1V to 4.9V over measurement range (±3%)  
 Voltage output range (5V Supply) Ratioetric output voltage from 2% to 98% (±1%) of V<sub>S</sub> supply over measurement range  
 Monotonic range 0.05V (1%) and 4.95V (99%) nominal  
 Load resistance 10KΩ minimum (resistive to GND)  
 Output noise ≤1 mVrms  
 Input/Output Delay 2.5ms TYP OR 0.15ms (See Ordering Code)

**PWM Output Option**  
 PWM frequency 244Hz ±20% over temperature range. For 500Hz & 1kHz see ordering code  
 PWM levels (9-30V supply) 0V and 5V Nominal (±3%)  
 PWM levels (5V supply) 0V and V<sub>S</sub> supply (±1%)  
 Duty cycle 10% to 90% over measurement range  
 Monotonic Flange 5% and 95% nominal  
 Load resistance 10KΩ minimum (resistive to GND)  
 Rise/Fall time (244Hz, 500Hz, 1kHz) <1.5μS

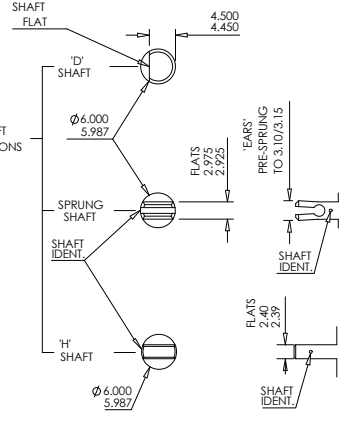
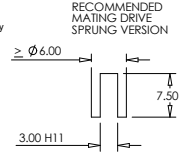
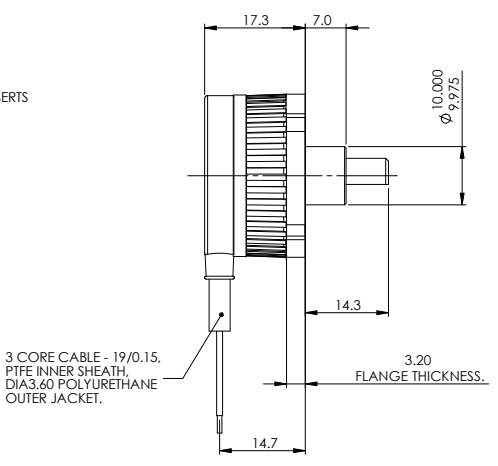
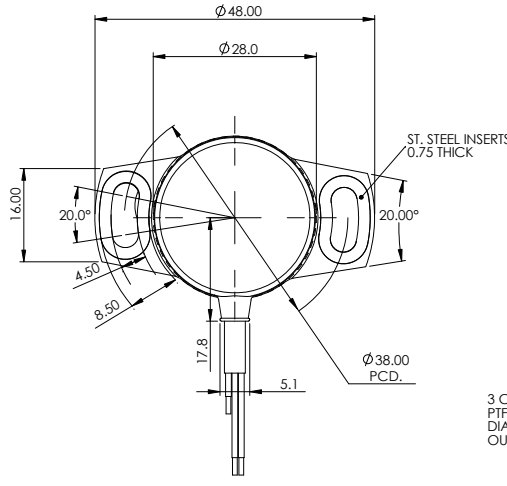
**Mechanical Data**  
 Mechanical angle 360° continuous  
 Torque Sealed = 120 gm cm / Unsealed = 100 gm cm  
 Max. operating speed 3600°/s  
 Weight <35g  
 Mounting 2 x M4 screws  
 Cable exit 3-core cable (black = GND, yellow = output & red = V+ supply)  
 Flaring Same as at mid electrical angle when shaft and cable exit are aligned as shown in Fig 1

**Environmental**  
 Operational temperature range (at 5V Supply) -40 to +140 °C (See Fig 3)  
 Operational temperature range (at 9-30V Supply) -40 to +137 °C with V<sub>S</sub> supply = 9Vdc; (See Fig 3)  
 Derate upper temperature limit by 0.57 °C for every 1V increase in supply e.g. -40 to 125 °C with V<sub>S</sub> supply = 30Vdc  
 Sealing IP50 or IP68

Note: Excessive temperature will cause the internal voltage regulator to shut down to protect the circuit from damage through overheating.

Tested to:  
 Storage temperature -55 to +140 °C  
 Vibration BS EN 60068-2-64: 1995 Sec 8.4 (14gm rms) 20 to 2000Hz Random  
 Shock 3M drop onto concrete  
 Life 20 million operations (10 × 10<sup>7</sup> cycles of ±75°)  
 Electromagnetic interference BS EN 61000-4-3 (1999)  
 to 100V/m, 80MHz to 1GHz and 1.4GHz to 2.7GHz  
 2004/108 EC

**OEM Options**  
 Non linear law  
 Switch output  
 Clamp voltages  
 Alternative PWM frequencies



**Wire Connections**  
 Red = V+ Supply  
 Yellow = Output  
 Black = GND

**Ordering Codes**

**Angle -** SRH280P  
 Output -

**Angle -** .....  
 A1 = Analogue 0.5v - 4.5v  
 A4 = Analogue 0.1v - 4.9v  
 A6 = Analogue 0.5v - 4.5v With 0.15ms Input/Output Delay  
 A7 = Analogue 0.1v - 4.9v With 0.15ms Input/Output Delay  
 P1 = PWM - 244Hz  
 P2 = PWM - 500Hz  
 P3 = PWM - 1kHz

**Direction Code -** .....  
 1 = Clockwise  
 2 = Anticlockwise

**Shaft Style -** .....  
 D = D Shaft  
 S = Sprung Shaft  
 H = H Shaft

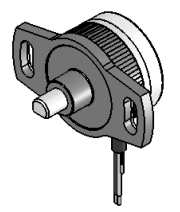
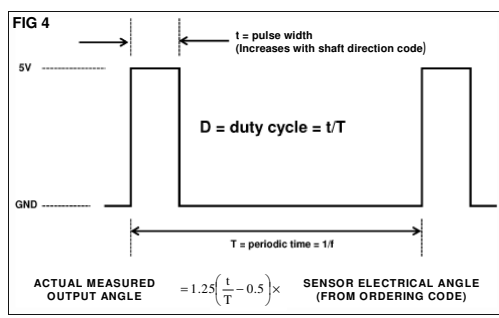
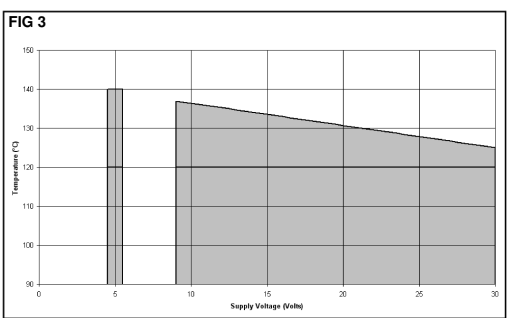
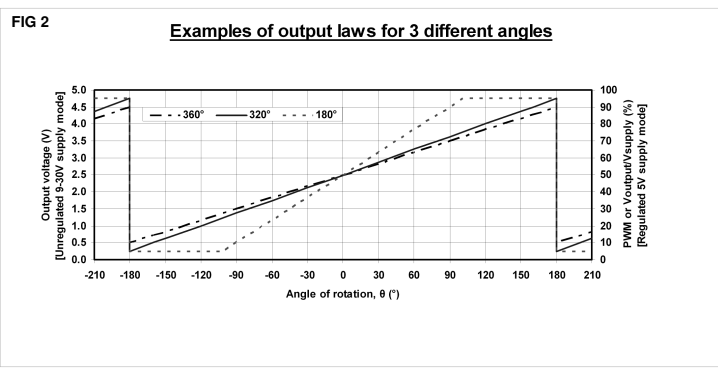
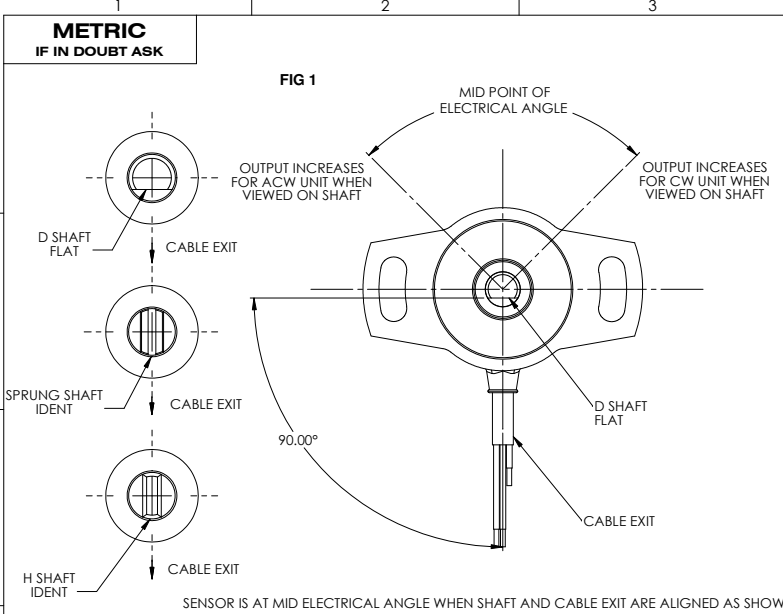
**Shaft Sealing -** .....  
 50 = IP50  
 68 = IP68

**Cable -** .....  
 P2 = 0.2m  
 P5 = 0.5m  
 02 = 2m

SCALE 3:2		D No SRH280 P		MATERIAL SHAFT - ST/ST. BODY - POLYMER		TOLERANCES: IN LINE WITH PERRY & GILES STANDARDS SS-301 SURFACE FINISH VALUES IN MICROMETRES (µm) TO BS1134PT2. ALL MACHINED SURFACES TO BE		TITLE SEALED ROTARY HALL SENSOR PROGRAMMABLE		PENNY + GILES		A3	
UNLESS STATED		FIRST USED ON		FINISH		ALL SCREW THREADS TO BS41 P12. EXTERNAL CLASS: 4H INTERNAL CLASS: 4H		PART NUMBER: SRH280P		SHT 1 OF 2 SHTS		3500000	
IF CONTROL DIMENSIONS (G) ARE SPECIFIED THEY ARE TO BE SUBJECT TO 100% INSPECTION OR STATISTICAL PROCESS CONTROL.		REF. SRH280		CLEAN		ANGULAR ± 1°		BREAK EDGE 0.05 - 0.15mm		PART NUMBER: SRH280P		SHT 1 OF 2 SHTS	
MASS (g)		VOL. (mm <sup>3</sup> )		REF. SRH280		FINISH CLEAN		TOLERANCES: IN LINE WITH PERRY & GILES STANDARDS SS-301 SURFACE FINISH VALUES IN MICROMETRES (µm) TO BS1134PT2. ALL MACHINED SURFACES TO BE		PENNY + GILES		A3	
UNLESS STATED		FIRST USED ON		FINISH		ALL SCREW THREADS TO BS41 P12. EXTERNAL CLASS: 4H INTERNAL CLASS: 4H		TITLE SEALED ROTARY HALL SENSOR PROGRAMMABLE		PART NUMBER: SRH280P		SHT 1 OF 2 SHTS	

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SRH280P  
ISOMETRIC VIEW

<b>SCALE</b> 3:2 UNLESS STATED 	IF CONTROL DIMENSIONS (Ø) ARE SPECIFIED THEY ARE TO BE SUBJECT TO 100% INSPECTION OR STATISTICAL PROCESS CONTROL.	D No	MATERIAL	TOLERANCES: IN LINE WITH PENNY & GILES STANDARDS (S-30) SURFACE TEXTURE VALUES IN MICROMETRES (µm) TO BS1134P72. ALL MACHINED SURFACES TO BE ALL SCREW THREADS TO BS41 P2.2. EXTERNAL CLASS: 6H INTERNAL CLASS: 6H UNLESS OTHERWISE STATED	<b>TITLE</b> SEALED ROTARY HALL SENSOR PROGRAMMABLE	<b>PENNY + GILES</b> PART NUMBER: SRH280P	<b>A3</b> SHT 2 OF 2 SHTS
		FIRST USED ON	SHAFT ST/ST. BODY - POLYMER				
	MASS (g) VOL. (mm <sup>3</sup> ) REF.	SRH280 P SRH280	CLEAN				

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