

**METRIC**  
IF IN DOUBT ASK

**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  
 Short circuit protection output to supply 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 < ± 50ppm/°C

**Output (See Fig 2)**  
 Options Ratiometric 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) Ratiometric output voltage from 10% to 90% (±1%) of V 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) Ratiometric output voltage from 2% to 98% (±1%) of V 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 Vsupply (±1%)  
 Duty cycle 10% to 90% over measurement range  
 Monotonic Range 5% and 95% nominal  
 Load resistance 10KΩ minimum (resistive to GND)  
 Rise/Fall time (244Hz, 500Hz, 1kHz) < 15µS

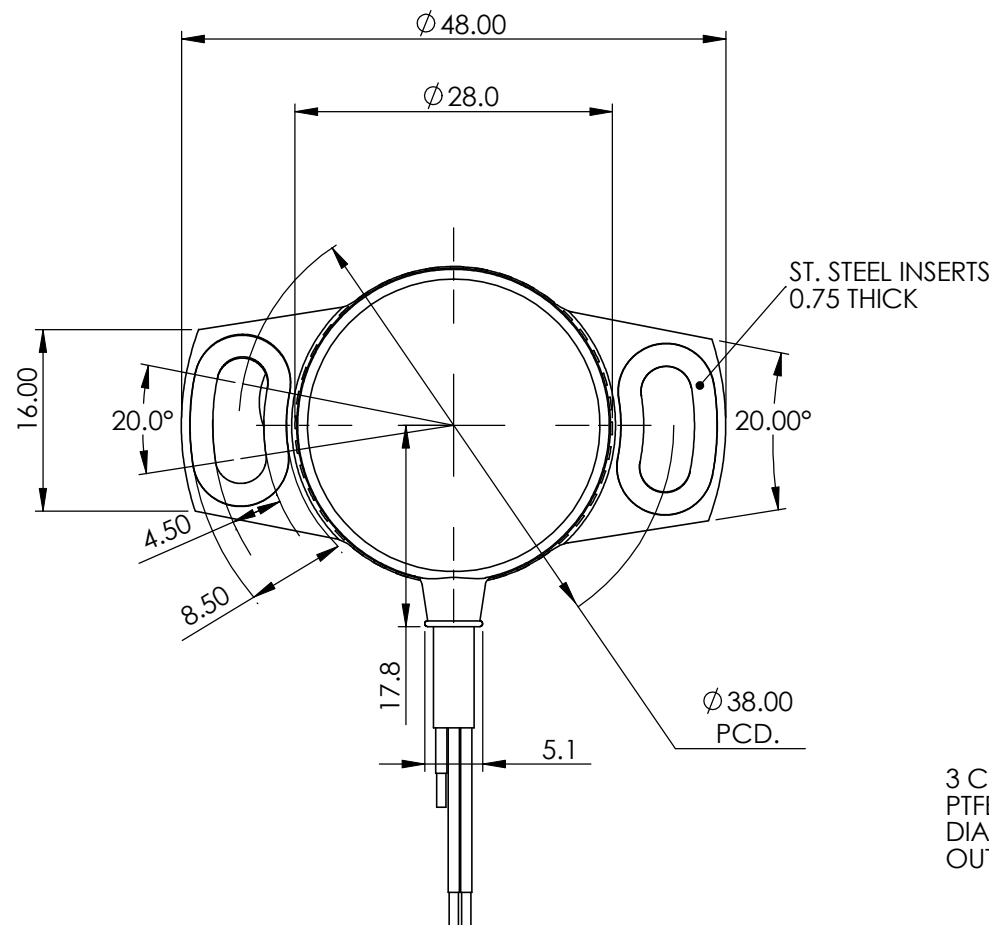
**Mechanical Data**  
 Mechanical angle 360° continuous  
 Torque Sealed = 120 gm cm / Unsealed = 100 gm cm  
 Max. operating speed 3600°/s  
 Weight < 35g  
 Mounting 2 x M4 screws  
 Cable exit 3-core cable (black = GND, yellow = output & red = V+ supply)  
 Phasing Sensor is at mid electrical angle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

**Environmental**  
 Operational temperature range (@ 5V Supply) -40 to +140°C (See Fig 3)  
 Operational temperature range (@ 9-30V Supply) -40 to +137°C with Vsupply = 9Vdc (See Fig 3)  
 Note: Excessive temperature will cause the internal voltage regulator to shut down to protect the circuit from damage through overheating.  
 Derate upper temperature limit by 0.57°C for every 1V increase in supply e.g. -40 to 125°C with V Supply = 30Vdc

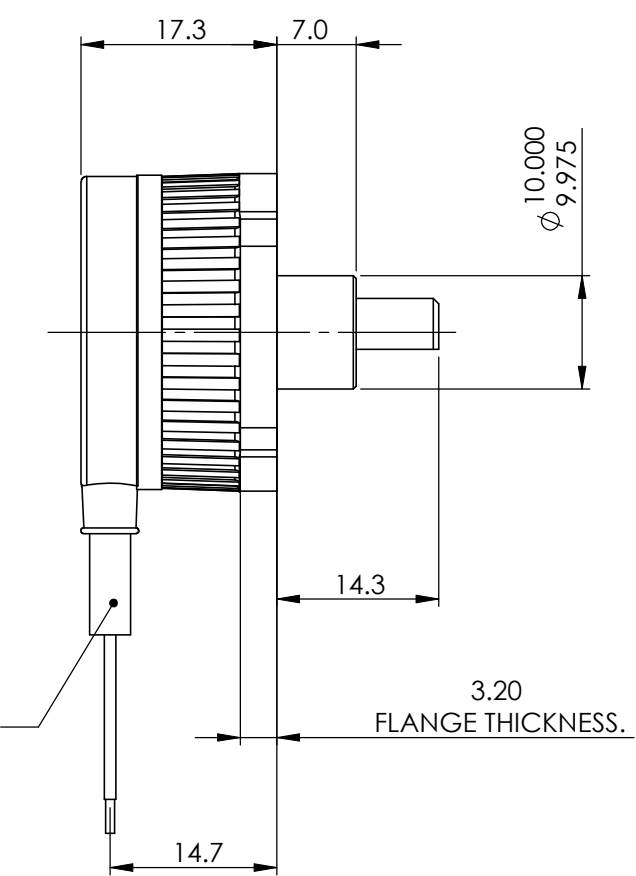
Sealing IP50 or IP68

Tested to:  
 Storage temperature -55 to +140°C  
 Vibration BS EN 60068-2-64; 1995 Sec 8.4 (14gn rms) 20 to 2000Hz Random  
 Shock 3M drop onto concrete  
 Life 20 million operations (10 x 10<sup>6</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



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

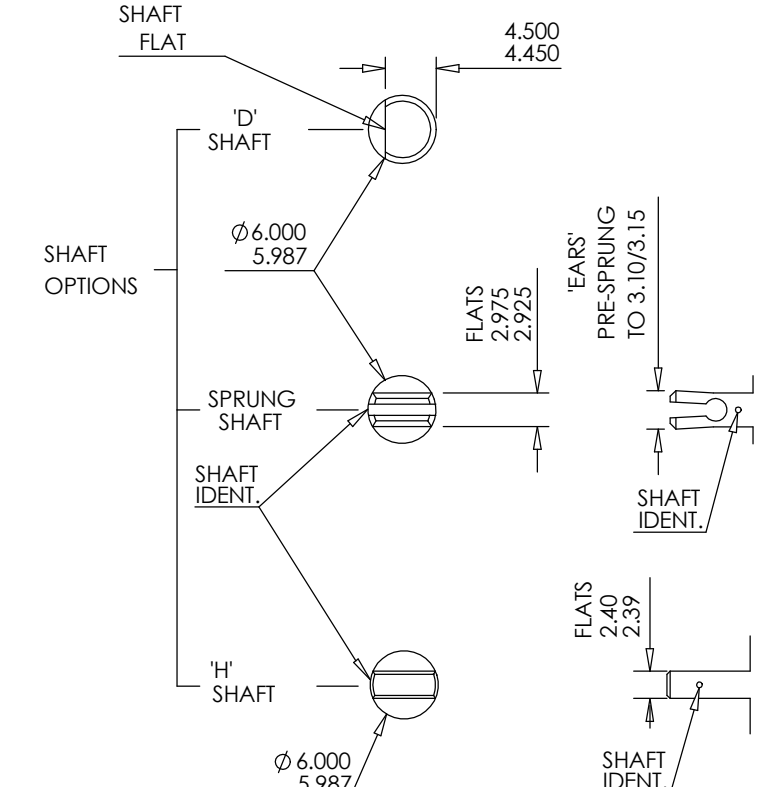
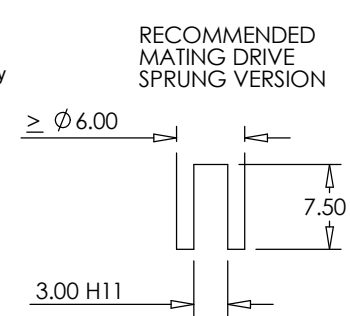
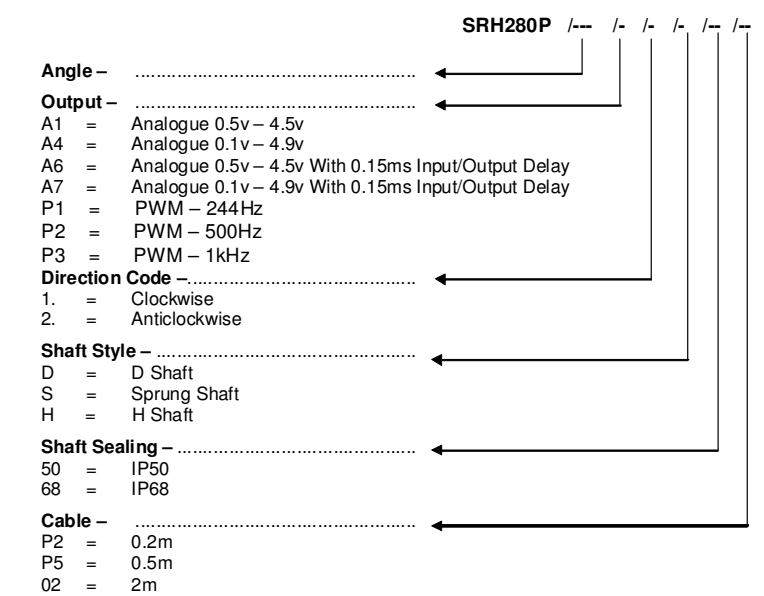


3 CORE CABLE - 19/0.15, PTFE INNER SHEATH, DIA3.60 POLYURETHANE OUTER JACKET.

**Wire Connections**

Red = V+Supply  
 Yellow = Output  
 Black = GND

**Ordering Codes**

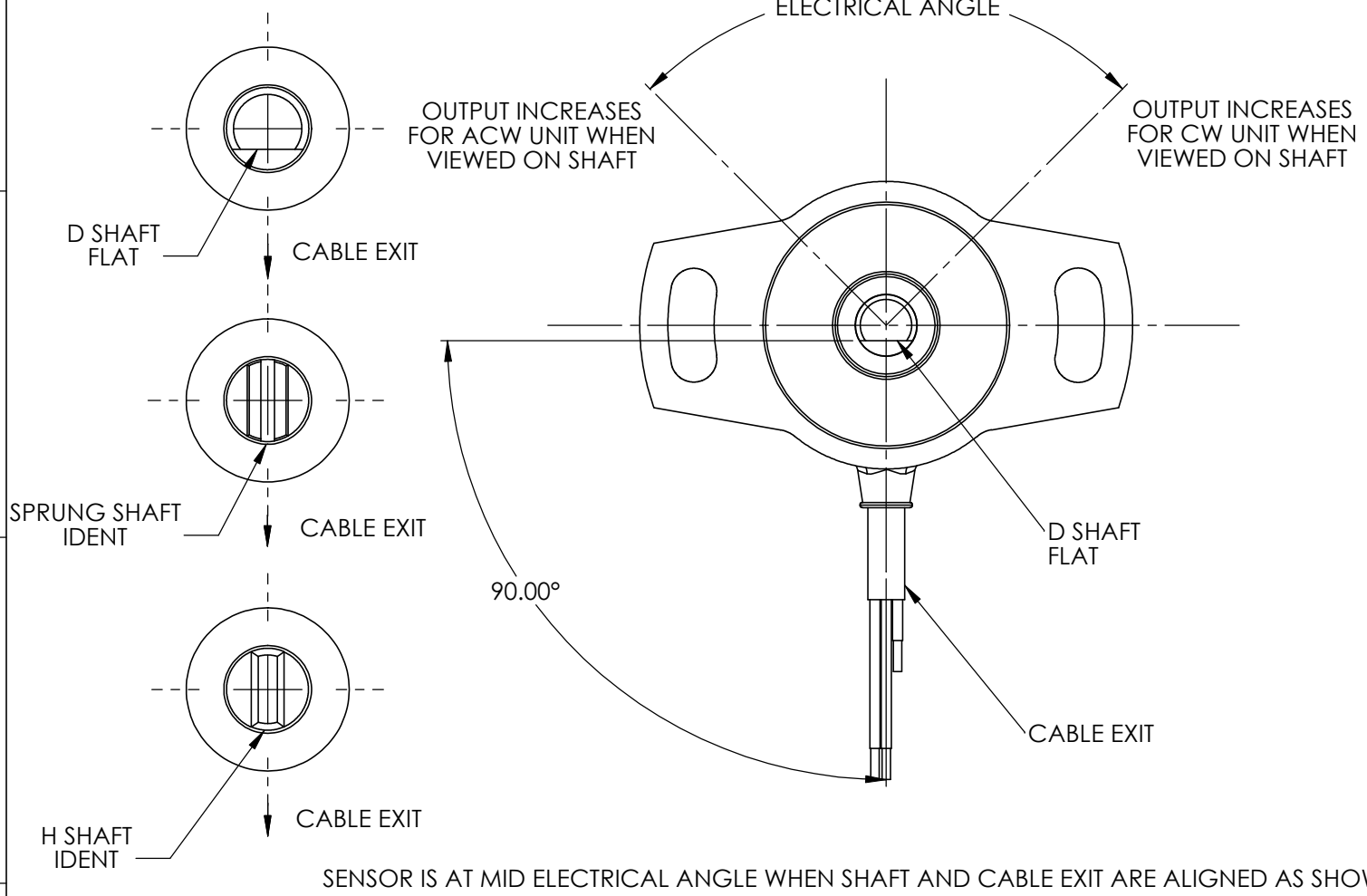


SCALE 3:2 UNLESS STATED	IF CONTROL DIMENSIONS (Kc) ARE SPECIFIED THEY ARE TO BE SUBJECT TO 100% INSPECTION OR STATISTICAL PROCESS CONTROL.	D No SRH280 P	MATERIAL SHAFT - ST/ST. BODY - POLYMER	TOLERANCES: IN-LINE WITH PENNY & GILES STANDARDS 55-301 SURFACE TEXTURE VALUES IN MICROMETRES (µm) TO BS1134:PT2. ALL MACHINED SURFACES TO BE 1.6 ALL SCREW THREADS TO BS3643 PT.2: EXTERNAL CLASS: 6g INTERNAL CLASS: 6H	TITLE SEALED ROTARY HALL SENSOR PROGRAMMABLE	<b>PENNY + GILES</b>	A3
THIRD ANGLE PROJECTION TO BS 8888	MASS (g)	VOL. (mm <sup>3</sup> )	REF. SRH280	FINISH CLEAN		PART NUMBER: SRH280P	SHT 1 OF 2 SHTS

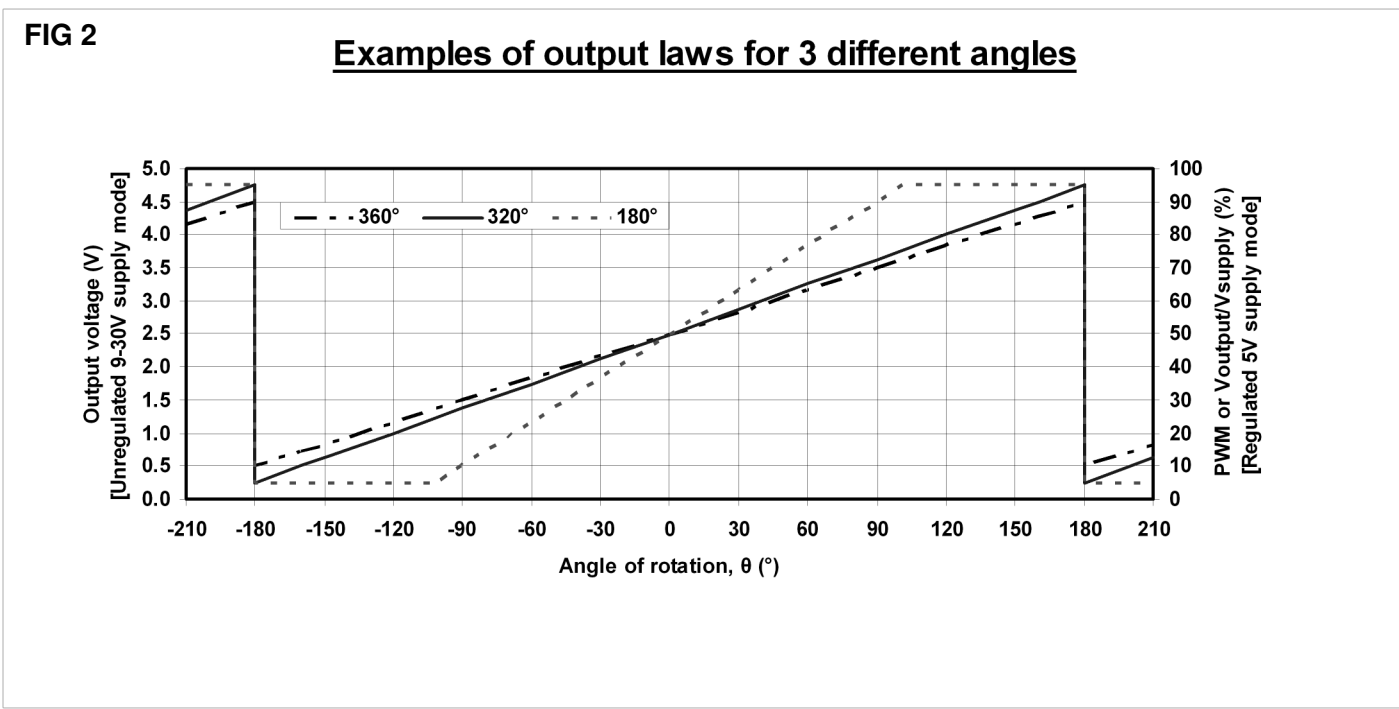
**METRIC**  
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5	25/01/10	BD	10569/4	AMR	MWB

**FIG 1**

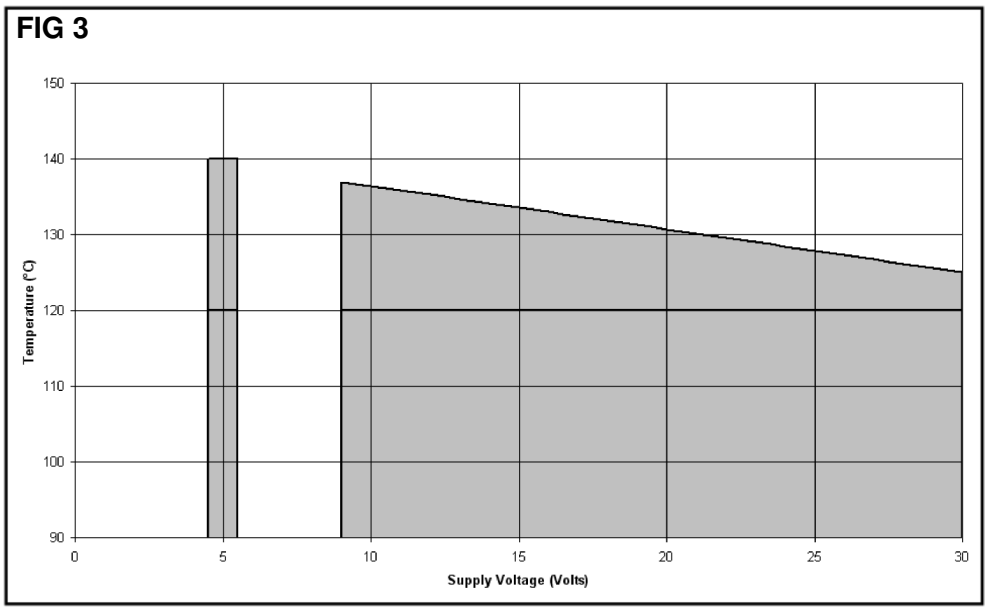


**FIG 2**



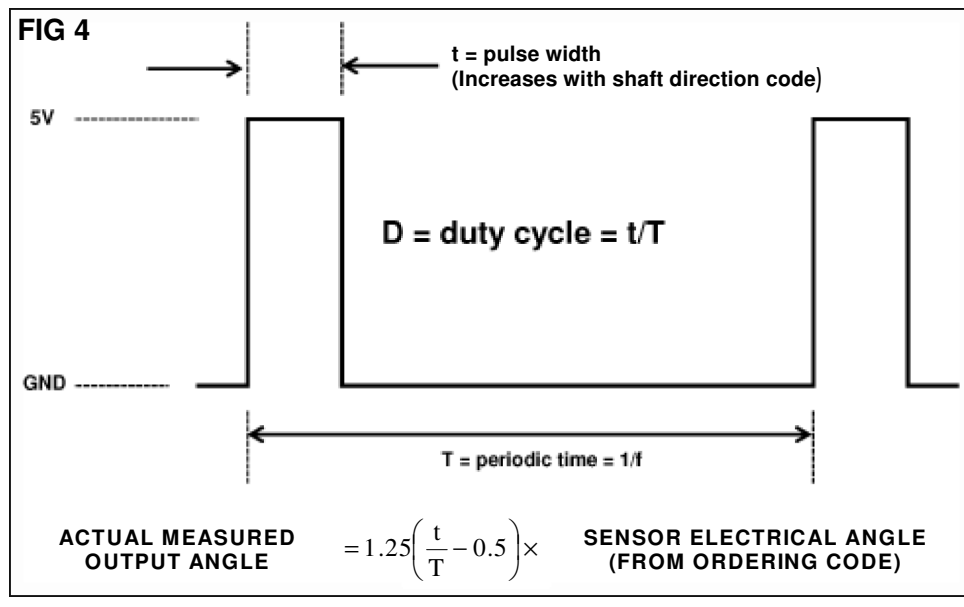
SENSOR IS AT MID ELECTRICAL ANGLE WHEN SHAFT AND CABLE EXIT ARE ALIGNED AS SHOWN

**FIG 3**

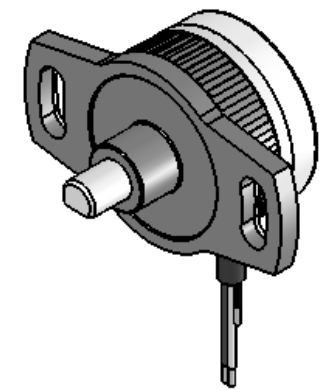


MAX OPERATING TEMPERATURE DERATING

**FIG 4**



PWM OUTPUT CHARACTERISTICS



SRH280P  
ISOMETRIC VIEW

SCALE <b>3:2</b> UNLESS STATED	IF CONTROL DIMENSIONS (Kc) ARE SPECIFIED THEY ARE TO BE SUBJECT TO 100% INSPECTION OR STATISTICAL PROCESS CONTROL.		D No SRH280 P	MATERIAL SHAFT ST/ST. BODY - POLYMER	TOLERANCES: IN-LINE WITH PENNY & GILES STANDARDS 55-301 SURFACE TEXTURE VALUES IN MICROMETRES (µm) TO BS1134:PT2. ALL MACHINED SURFACES TO BE $\sqrt{1.6}$ ALL SCREW THREADS TO BS3643 PT.2: EXTERNAL CLASS: 6g INTERNAL CLASS: 6H	TITLE SEALED ROTARY HALL SENSOR PROGRAMMABLE		A3
	MASS (g)	VOL. (mm <sup>3</sup> )	FIRST USED ON REF. SRH280	FINISH CLEAN				