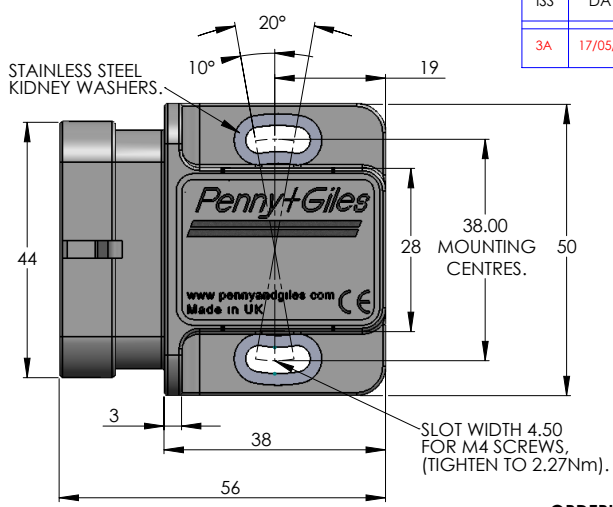
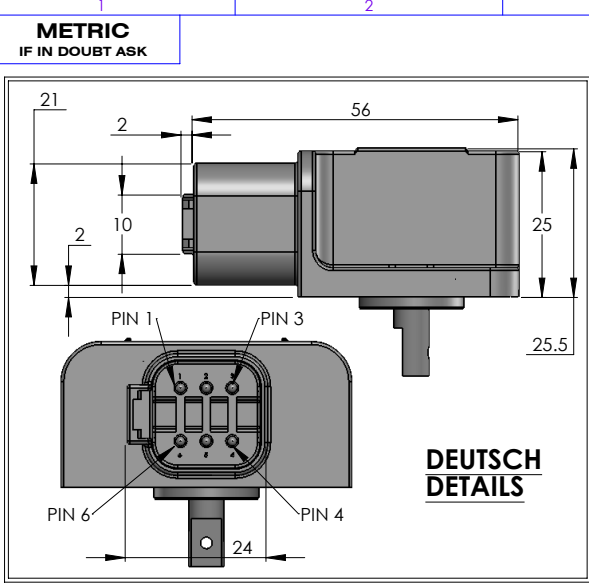


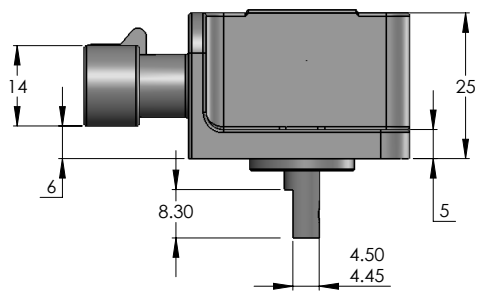
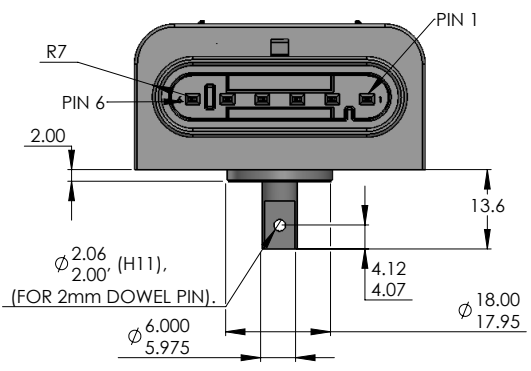
ISS	DATE	DRAWN	ECR No.	CHK	APP
3A	17/05/10	K.T	C10593-9	M.B	M.B



MATING CONNECTORS
 AMP - 282090-1
 DEUTSCH - DT06-6S

CONNECTIONS (BOTH VERSIONS)

- GROUND 1
- +SUPPLY 1
- OUTPUT 1
- GROUND 2
- +SUPPLY 2
- OUTPUT 2



MAIN BODY AND AMP SUPERSEAL DETAILS.

ORDERING CODES

SRH220DR/

ANGLE CHANNEL 1
ANGLE CHANNEL 2

OUTPUT
 A1 - ANALOGUE 0.5 to 4.5V
 A2 - ANALOGUE 0.2 to 9.8V
 A4 - ANALOGUE 0.1 to 4.9V
 A6 - ANALOGUE 0.5 to 4.5V (0.15ms I/O DELAY)
 A7 - ANALOGUE 0.1 to 4.9V (0.15ms I/O DELAY)
 P1 - PWM - 244Hz (STANDARD)
 P2 - PWM - 500 Hz.
 P3 - PWM - 1KHz.

DIRECTION CODE
 3 = BOTH CLOCKWISE
 4 = BOTH ANTICLOCKWISE
 5 = CH1-CW, CH2-ACW
 6 = CH1-ACW, CH2-CW

SHAFT
 D = D SHAFT

PLUG
 A = AMP
 D = DEUTSCH

SCALE	IF CONTROL DIMENSIONS (R2) ARE SPECIFIED THEY ARE TO BE SUBJECT TO INSPECTION OR STATISTICAL PROCESS CONTROL.	D No	MATERIAL	TOLERANCES: UNLESS OTHERWISE SPECIFIED TO BS 301 SURFACE FINISH: UNLESS OTHERWISE SPECIFIED TO BS 1347P2. ALL MACHINED SURFACES TO BE	TITLE	PENNY + GILES	A3
UNLESS STATED		FIRST USED ON	BODY - VECTRA A130 BLACK LCP PINS - BRONZE SHAFT - STAINLESS STEEL 316	ALL SCREW THREADS TO BS4133 P12. EXTERNAL CLASS: 4H. INTERNAL CLASS: 4H.	DUAL REDUNDANT, SEALED ROTARY HALL SENSOR WITH AMP 1.5 SUPERSEAL OR DEUTSCH 'D' CONNECTOR.	PART NUMBER: SRH220DR	SHT 1 OF 3 SHTS
MASS (g)	VOL. (mm ³)	REF.	FINISH CLEAN	ANGULAR ° 1"			
				LINEAR 0. mm 0.2 mm 0.05 mm 0.02 mm	(MACHINING) +/- 0.5 mm +/- 0.2 mm +/- 0.1 mm +/- 0.05 mm	BREAK EDGE 0.05 - 0.15 mm RILET RADIUS 0.1 - 0.3 mm	

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METRIC
IF IN DOUBT ASK

SRH220DR PERFORMANCE

ELECTRICAL DATA

MEASUREMENT RANGE 20° TO 360° IN 1° INCREMENTS.
 SUPPLY VOLTAGE 9V TO 30Vdc UNREGULATED AND 5V ±0.5Vdc REGULATED.
 SUPPLY CURRENT ≤25mA (12.5mA PER CHANNEL).
 SUPPLY REVERSE POLARITY PROTECTION YES.
 SHORT CIRCUIT PROTECTION, OUTPUT TO GROUND YES.
 SHORT CIRCUIT PROTECTION, OUTPUT TO SUPPLY IN 5V REGULATED MODE ONLY.
 OVER VOLTAGE PROTECTION UP TO 40VOLTS (-40 TO +60°C).
 POWER ON SETTLEMENT <1s.
 RESOLUTION 12 BIT (0.0225% OF MEASUREMENT RANGE).

NON LINEARITY ± 0.4%.
 TEMPERATURE COEFFICIENT < ±30ppm/°C IN 5V REGULATED MODE.
 < ±110ppm/°C IN 9 - 30V MODE.

OUTPUT OPTIONS RATIO-METRIC ANALOGUE, PWM OR ABSOLUTE ANALOGUE.
 DIRECTION FACTORY PROGRAMMED TO INCREASE OR DECREASE WITH CW SHAFT ROTATION.

A1, A4 (0.5 to 4.5V)
 VOLTAGE OUTPUT RANGE (9-30V SUPPLY) ABSOLUTE VOLTAGE FROM 0.5 TO 4.5V OVER MEASUREMENT RANGE, (± 3%).
 VOLTAGE OUTPUT RANGE (5V SUPPLY) RATIO-METRIC OUTPUT VOLTAGE FROM 10% TO 90%, (± 1%) OF V SUPPLY OVER MEASUREMENT RANGE.
 MONOTONIC RANGE 0.25V (5%) AND 4.75V (95%) NOMINAL.

A4, A7 (0.1 to 4.9V)
 VOLTAGE OUTPUT RANGE (9-30V SUPPLY) ABSOLUTE VOLTAGE FROM 0.1 TO 4.9V OVER MEASUREMENT RANGE, (± 3%).
 VOLTAGE OUTPUT RANGE (5V SUPPLY) RATIO-METRIC 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 10kOHMS MINIMUM (RESISTIVE TO GROUND).
 OUTPUT NOISE 51mV RMS.
 INPUT/OUTPUT DELAY 2.5ms TYP, 0.15ms (SEE ORDERING CODE).

P1, P2 AND P3 OUTPUT OPTION
 PWM FREQUENCY 24kHz, (STANDARD) ± 20% OVER TEMPERATURE RANGE.
 FOR 500kHz AND 1kHz SEE ORDERING CODE.

PWM LEVELS (9-30V SUPPLY) 0V AND 5V NOMINAL, (± 3%).
 PWM LEVELS (5V SUPPLY) 0V AND V SUPPLY, (± 1%).
 DUTY CYCLE 10% TO 90% OVER MEASUREMENT RANGE.
 MONOTONIC RANGE 5% 95% NOMINAL.
 LOAD RESISTANCE 10kOHMS MINIMUM (RESISTIVE TO GROUND).
 RISE/FALL TIME (244, 500 AND 1000Hz) <15 MICROSECONDS TYPICAL.

MECHANICAL DATA

MECHANICAL ANGLE 360° CONTINUOUS
 TORQUE 120 gm.cm.
 MAXIMUM OPERATING SPEED 3600°/SECOND.
 WEIGHT 51gms.
 MOUNTING 2 x M4 SCREWS.
 PHASING SEE FIG 1.

ENVIRONMENTAL DATA

OPERATIONAL TEMPERATURE RANGE (5V SUPPLY) -40 TO +140°C. (SEE FIG. 3).
 OPERATIONAL TEMPERATURE RANGE (9 TO 30V SUPPLY) -40 TO +135.7°C WITH V SUPPLY = 9Vdc. (SEE FIG. 3).
 DERATE UPPER LIMIT BY 1.7°C FOR EACH 1V INCREASE IN V SUPPLY, e.g. -40 TO +100°C WITH V SUPPLY = 30Vdc. (SEE NOTE BELOW).
 NOTE: EXCESSIVE TEMPERATURE WILL CAUSE THE INTERNAL VOLTAGE REGULATOR TO SHUT DOWN TO PROTECT THE CIRCUIT FROM DAMAGE DUE TO OVERHEATING.
 AMP CONNECTOR (WHEN FULLY MATED) - IP68.
 DEUTSCH CONNECTOR (WHEN FULLY MATED) - IP67.
 -55 TO +140°C.
 BS EN 60068-2-64; 1995 SEC 8.4 (31.4 gn rms.) 20 TO 2000Hz RANDOM.
 3 METRE DROP ONTO CONCRETE AND 2500g.
 20 MILLION OPERATIONS, (10 MILLION CYCLES OF +/- 75%).
 BS EN 61000-4-3 (1999) TO (100V/METRE), 80MHz TO 1GHz AND 1.4GHz TO 2.7GHz.
 COMPLIES TO DIRECTIVE 2004/108/EC

SEALING

TESTED TO:
 STORAGE TEMPERATURE
 VIBRATION
 SHOCK
 LIFE
 ELECTROMAGNETIC INTERFERENCE
 EMC

OEM OPTIONS

NON LINEAR LAW.
 SWITCH OUTPUTS.
 CLAMP VOLTAGES.
 ALTERNATIVE PWM FREQUENCIES.
 DIFFERENT OUTPUT PHASING CH1/CH2.
 DIFFERENT INPUT/OUTPUT DELAY OPTIONS.

SCALE

UNLESS STATED

ISO 80000 PROJECTION TO BS 8888

D No

FIRST USED ON

REF.

MATERIAL

SEE ABOVE

FINISH

CLEAN

TOLERANCES: UNLESS OTHERWISE SPECIFIED TO BS1347PT2. ALL MACHINED SURFACES TO BE

ALL SCREW THREADS TO BS41 PT2. EXTERNAL CLASS: 4H. INTERNAL CLASS: 9H.

ANGULAR 1° 0.1mm

UNLESS OTHERWISE STATED

TITLE

DUAL REDUNDANT, SEALED ROTARY HALL SENSOR WITH AMP 1.5 SUPERSEAL OR DEUTSCH 'DT' CONNECTOR.

ISS	DATE	DRAWN	ECR No.	CHK	APP
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FIG. 2 OUTPUT LAW FOR 3 DIFFERENT ANGLES.

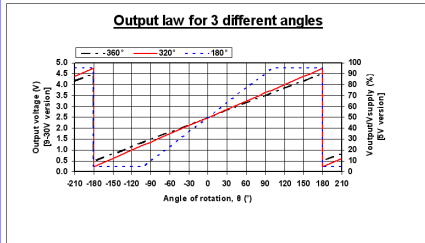


FIG. 3 MAXIMUM OPERATING TEMPERATURE DERATING.

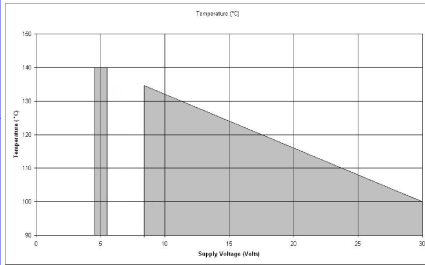
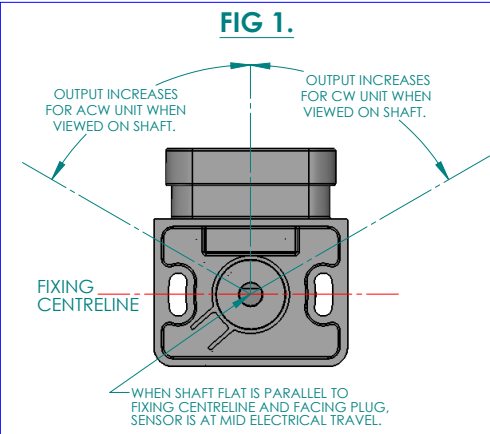
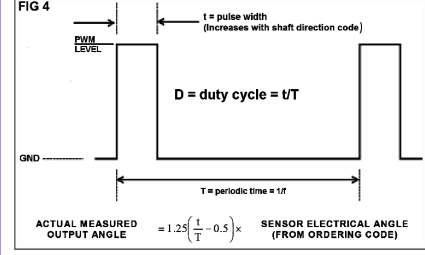


FIG. 4 PWM OUTPUT CHARACTERISTICS.



PENNY + GILES

A3

PART NUMBER: **SRH220DR**

SHT 2 OF 3 SHTS

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**METRIC
IF IN DOUBT ASK**

ISS	DATE	DRAWN	ECR No.	CHK	APP
3A	17/05/10	K.T	10593/9	M.B	M.B

SRH220DR PERFORMANCE A2 (0 - 10V) OUTPUT OPTION

ELECTRICAL DATA

MEASUREMENT RANGE	20° TO 360° IN 1° INCREMENTS
SUPPLY VOLTAGE	13.5 - 30Vdc UNREGULATED
SUPPLY CURRENT	≤ 30mA (15mA PER CHANNEL)
SUPPLY REVERSE POLARITY PROTECTION	YES
OUTPUT SHORT CIRCUIT PROTECTION TO GND	YES
OUTPUT SHORT CIRCUIT PROTECTION TO SUPPLY	YES
POWER ON SETTLEMENT	≤ 10ms
RESOLUTION	12 BIT (0.025% OF MEASUREMENT RANGE)
NON-LINEARITY	≤ 0.4% OF RANGE
TEMPERATURE COEFFICIENT	≤ 125PPM/°C
OVER VOLTAGE PROTECTION	UP TO 40V (-40 TO +60°C)

OUTPUT (FIG 5)

DIRECTION: FACTORY PROGRAMMED TO INCREASE OR DECREASE WITH CW SHAFT ROTATION

A2 OUTPUT

VOLTAGE OUTPUT RANGE	NOMINALLY 0.2Vdc TO 9.8Vdc (±0.2V)
LOAD RESISTANCE	10KΩ MINIMUM (RESISTIVE TO GND)
OUTPUT NOISE	< 1 mVrms
INPUT / OUTPUT DELAY	3.5 ms

MECHANICAL DATA

MECHANICAL ANGLE	360° CONTINUOUS
TORQUE	120gm.cm.
WEIGHT	51gms
MOUNTING	2 x M4 SCREWS
PHASING	SEE FIG 1.

ENVIRONMENTAL

OPERATIONAL TEMPERATURE RANGE (FIG 6)	-40 TO 115°C WITH VSUPPLY = 13.5VDC DERATE UPPER TEMPERATURE LIMIT BY 0.91°C FOR EACH 1VDC INCREASE IN VSUPPLY E.G. -40 TO 100°C WITH VSUPPLY = 30VDC NOTE: EXCESSIVE TEMPERATURE WILL CAUSE THE INTERNAL VOLTAGE REGULATOR TO SHUT DOWN TO PROTECT THE CIRCUIT FROM DAMAGE THROUGH OVERHEATING.
---------------------------------------	---

SEALING: AMP CONNECTOR (WHEN FULLY MATED) – IP68
DEUTSCH CONNECTOR (WHEN FULLY MATED) – IP67

TESTED TO:

STORAGE TEMPERATURE	-55 TO 140°C
VIBRATION	BS EN 60068-2-64; 1995 SEC 8.4 (31.4 gm rms) 20 TO 2000HZ RANDOM
SHOCK	3M DROP ONTO CONCRETE AND 2500g HIGHSHOCK
LIFE	20 MILLION OPERATIONS, (10 MILLION CYCLES OF +/- 75°)
ELECTROMAGNETIC INTERFERENCE	BS EN 61000-4-3(1999) TO 100V/M, 80MHZ TO 1GHZ AND 1.4GHZ TO 2.7GHZ
EMC	COMPLIES TO DIRECTIVE 2004/108/EC

FIG 5 OUTPUT LAW FOR 4 DIFFERENT ANGLES

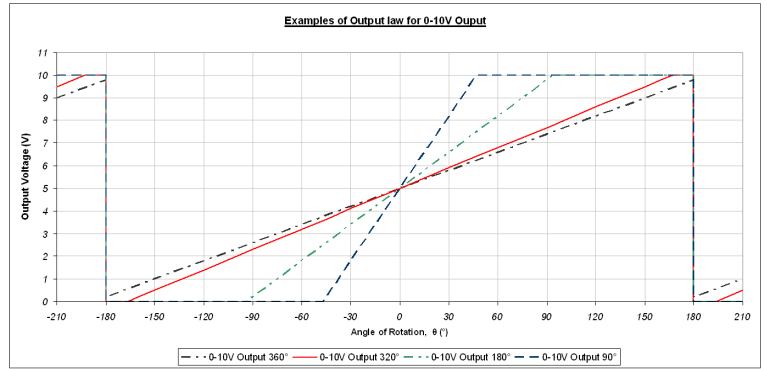
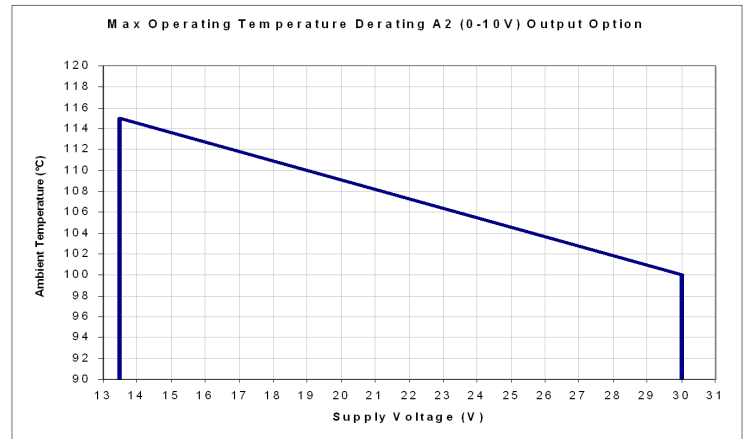


FIG 6 MAXIMUM TEMPERATURE DERATING



SCALE	IF CONTROL DIMENSIONS (R2) ARE SPECIFIED THEY ARE TO BE SUBJECT TO INSPECTION OR STATISTICAL PROCESS CONTROL.	D No	MATERIAL	TOLERANCES: UNLESS OTHERWISE SPECIFIED TO BS1347PT2. ALL MACHINED SURFACES TO BE TO BS1347PT2. INTERNAL CLASS: 9H	TITLE	PENNY + GILES	A3
UNLESS STATED	MASS (g) VOL. (mm ³)	FIRST USED ON	SEE ABOVE	ALL SCREW THREADS TO BS4134 PT2. INTERNAL CLASS: 9H	DUAL REDUNDANT, SEALED ROTARY HALL SENSOR WITH AMP 1.5 SUPERSEAL OR DEUTSCH 'DT' CONNECTOR.	PART NUMBER: SRH220DR	SHT 3 OF 3 SHTS
UNLESS STATED	REF.	FINISH	CLEAN	ANGULAR TYP 0.1mm ±0.1mm 0.05mm ±0.05mm			

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