

# Linear Accelerometers

## SA-120RHT, SA-125RHT

Columbia Models SA-120RHT and SA-125RHT Force Balance Accelerometers have been designed as Measurement While Drilling (MWD) sensors for use in downhole well service applications. The Model SA-120RHT operates from +/-15 volts supply and is capable of operating at temperatures of up to 200 degrees Celsius. Model SA-125RHT requires +/-5VDC and operates to 190 degrees Celsius. Both sensors are completely self-contained and provide a high level, low impedance output eliminating the need for high temperature signal conditioning.

In addition to exceptional high temperature performance, the small size, rugged construction and low power consumption have made the SA-120RHT and SA-125RHT sensors the accepted standard for use in downhole high temperature mapping. *Consult the factory for customized versions of these sensors.*

- \* **Miniature MWD Sensors**
- \* **200°C & 190°C Operation**
- \* **Choice of Power Options**
- \* **Extreme Shock and Vibration Survival**



### Specifications

	SA-120RHT	SA-125RHT
<b>Operational</b>		
Ranges Available	±1 G To ±10 G	±1 G To ±5 G
Output Voltage	±5 Volts ±2% into 100K Load	±3 Volts ±2% into 100K Load
Excitation	±15 VDC <20 mA	±5 VDC <10 mA
Output Impedance	<5000 Ohms	<2000 Ohms
Sensitive Axis Alignment	Better Than 0.5 Deg	
Scale Factor Tolerance	±1.5%	
Scale Factor Temp Coefficient	0.025% / Deg C Max.	
Zero Bias	±0.15% F.R.	±0.25% F.R.
Null Temp Sensitivity	0.002% F.R./ Deg C	0.003% F.R./ Deg C
Natural Frequency	50 To 300 Hz Dependent Upon Range	50 To 250 Hz Dependent Upon Range
Damping Ratio	0.6 To 1	0.7 ±0.2
Cross Axis Sensitivity	0.01 G/G	
Output Noise	<3 mV RMS (0 To 10KHz)	
Non-Linearity	±0.05% F.R.	±0.1% F.R.
Hysteresis & Non-Repeatability	±0.07% F.R.	±0.15% F.R.
Threshold & Resolution	0.001% F.R.	Better Than 0.002% F.R.

### Environmental

Temperature, Operating	-40 To +200 Deg C	-40 To +190 Deg C
Temperature, Storage	-50 To +200 Deg C	
Vibration Survival (2 To 2,000 Hz)	25 G RMS, 0.5" Disp D.A.	
Shock Survival	500 G, 0.5 mSec	
Ambient Pressure	0 To 5 Atmospheres	
Humidity	95% R.H.	

### Physical

Weight	1.5 Oz (42.5 Gm)	
Size		
Standard Square Flange	1.16 In Sq x 0.73 In H (2.95 cm Sq x 1.86 cm H)	
Optional Round Flange	1.10 In Dia. x 0.73 In H (2.79 cm Dia. x 1.86 cm H)	
Case Material	Nickel-Plated Aluminum	
Sealing	Environmental	
Electrical Interface	4 Terminal Pins	

Cable Options: AID04313

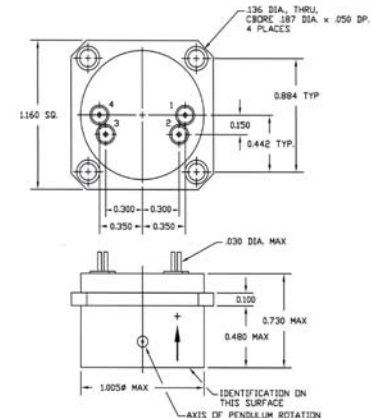
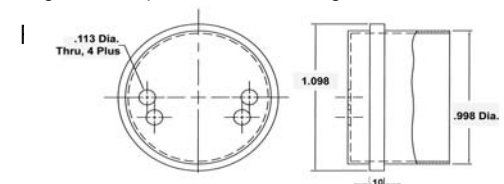


Figure 1 – Optional Round Flange



### Output Terminal Pin Functions:

SA-120RHT		SA-125RHT	
Pin	Function	Pin	Function
A	+15 VDC	A	+5 VDC
B	Ground	B	Ground
C	-15 VDC	C	-5 VDC
D	Output	D	Output

### Ordering Information:

SA-120RHT (+/- X G )

SA-125RHT (+/- X G )

Standard Accelerometer  
Range +/- X G (Required)

Optional Round Flange (See Fig. 1 Above)

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Columbia Research Laboratories, Inc. 1925 Mac Dade Blvd. Woodlyn, PA 19094 USA

Phone: 1.800.813.8471 / Fax: 610.872.3882 / email: sales@columbiaresearchlab.com

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