

# Linear Accelerometers

## SA-102MFTB, SA-302MFTA

The Columbia Models SA-102MFTB and SA-302MFTA are precision miniature force balance accelerometers designed to operate from +24 to +32 VDC aircraft power. The high level output signal and inherent self-regulation qualities of the servo loop design make these accelerometers excellent candidates for airborne telemetry applications. The output signal format is compatible with most airborne VCO's and signal processing systems.

Both configurations incorporate the Columbia HP torquer system, which provides exceptional performance and reliability in the severe vibration and shock environments associated with aircraft and missile flights. The Model SA-302MFTA is a compact triaxial version of the single axis Model SA-102MFTB. *Consult the factory for customized versions of these sensors.*

Note: Exports of accelerometers from the United States are subject to the licensing requirements of the Export Administration Regulations (EAR) and/or the International Traffic in Arms Regulations (ITAR).

- \* **Miniature Airborne Sensors**
- \* **+28 VDC Operation**
- \* **High Reliability**
- \* **1 & 3 Axis Configurations**



### Specifications

	SA-102MFTB	SA-302MFTA
<b>Operational</b>		
Ranges Available	$\pm 1$ G To $\pm 50$ G	$\pm 1$ G To $\pm 35$ G
Output Voltage	0.2 To 4.8 VDC into 100K Load	
Excitation	+24 To +32 VDC, <30 mA	
Output Impedance	<5000 Ohms	
Sensitive Axis Alignment	Better Than 0.5 Deg	
Scale Factor Tolerance	$\pm 1\%$	
Scale Factor Temp Coefficient	0.02% / Deg C Max.	
Zero Bias	2.5 $\pm$ 0.025 VDC	
Null Temp Sensitivity	0.005% F.R./Deg C	
Natural Frequency	50 To 350 Hz Dependent Upon Range	
Damping	0.7 $\pm$ 0.2	
Cross Axis Sensitivity	0.002 G/G Exclusive of Case Alignment	
Output Noise	<0.02% F.R.	
Non-Linearity	0.1% F.R.	
Hysteresis & Non-Repeatability	0.1% F.R.	
Threshold & Resolution	0.001% F.R.	

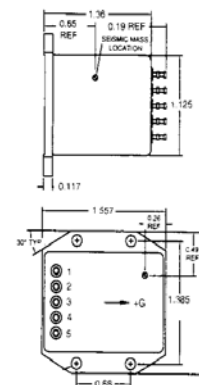
### Environmental

Temperature, Operating	-50 To +90 Deg C	
Temperature, Storage	-55 To +100 Deg C	
Vibration Survival (2 To 2,000 Hz)	10 G RMS, 0.75" Disp D.A.	
Shock Survival	1000 G, 0.5 mSec	500 G, 0.5 mSec
Ambient Pressure	0 To 5 Atmospheres	
Humidity	90% R.H.	

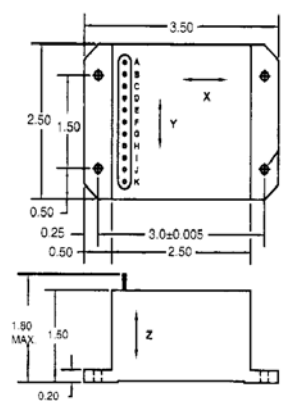
### Physical

Weight	2 Oz (57 Gm) Max.	14 Oz (397 Gm) Max.
Size	1.60 In L x 1.56 In W x 1.36 In H (4.1 cm L x 4.0 cm W x 3.5 cm H)	2.50 In Sq x 1.00 In H (6.35 cm Sq x 2.5 cm H)
Case Material	Nickel-Plated Aluminum	
Sealing	Environmental	
Electrical Interface	5 Terminal Pins	11 Terminal Pins

SA-102MFTB



SA-302MFTA



### I / O Terminal Pin Functions:

SA-102MFTB	
Pin	Function
1	+28 VDC
2	Pwr / Sig Grd
3	Signal Out
4	Test (+)
5	Test (-)

SA-302MFTA	
Pin	Function
A	+28 VDC
B	Ground
C	"X" Signal
D	"X" Ground
E	"Y" Signal
F	"Y" Ground
G	"Z" Signal
H	"Z" Ground
I	"X" Test
J	"Y" Test
K	"Z" Test

### Ordering Information:

SA-102MFTB (+/- X G)

SA-302MFTA (+/- X G)

Standard Accelerometer  
Range +/- X G (Required)

R112805



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