## **Angular Accelerometers**

# SR-100FR, SR-200RFR

The Columbia Models SR-100FR and SR-200RFR Angular Accelerometers are designed for low level near DC applications. These sensors incorporate the fluid rotor concept to provide extremely high sensitivity and full scale ranges as low as +/-0.01 radians/second <sup>2</sup>. The high performance torquer design maintains ruggedness and reliability in severe shock and vibration environments.

The Model SR-100FR operates from a  $\pm$ -15 volt power source and has an output span of  $\pm$ -5 volts for full scale input. The Model SR-200RFR features the same sensor system as the SR-100FR but provides electronics that operate from a  $\pm$ 24 to  $\pm$ 32 volt aircraft supply and delivers 0 to 5 volt output. Both units are completely self-contained and require no additional amplification or conditioning.

Applications for these high sensitivity accelerometers include rotational studies or stabilization of structures, platforms, antennas and ships. *Consult the factory for customized versions of these sensors.* 

Specifications	00 40050	
Operational	SR-100FR	SR-200RFR
Ranges Available	<u>+</u> 0.1 To <u>+</u> 5 Rad/Sec <sup>2</sup>	
Output Voltage	<u>+</u> 5 Volts into 100K Load	0.2 To 4.8 VDC into 100K Load
Excitation	<u>+</u> 15 VDC <20 mA	+24 To +32 VDC <30 mA
Output Impedance	5,000 Ohms Typical	
Sensitive Axis Alignment	0.5 Deg	
Scale Factor Tolerance	<u>+</u> 1%	
Scale Factor Temp Coefficient	0.054% / Deg C	0.07% / Deg C
Zero Bias	2 mRad / Sec² Max.	2.5 <u>+</u> 0.01 VDC
Null Temp Sensitivity	45 µRad/Sec²/Deg C	60 µRad/Sec²/Deg C
Natural Frequency	10 Hz Min.	
Damping Ratio	0.6 To 1	
Linear Acceleration Sensitivity	10 mRad / Sec² / G	
Cross Axis Sensitivity	<0.5%	
Output Noise	2 mRad / Sec² RMS	
Non-Linearity	<u>±</u> 0.1% F.R.	
Hysteresis & Non-Repeatability	<u>+</u> 0.1% F.R.	<u>+</u> 0.2% F.R.
Threshold & Resolution	0.001% F.R.	

## Environmental

Temperature, Operating	-40 To +71 Deg C
Temperature, Storage	-40 To +71 Deg C
Vibration Survival (2 To 2,000 Hz)	10 G RMS, 0.5" Disp D.A.
Linear Acceleration Survival	100 G
Shock Survival	100 G, 11 mSec
Ambient Pressure	0 To 5 Atmospheres
Humidity	95% R.H.

#### Physical

Weight	3.5 Lbs. Max (1.58 KG)	
Size	6.56 In. Dia. x 2.375 In. H (16.7 cm Dia. x 6.0 cm H)	
Case Material	Anodized Aluminum	
Sealing	Environmental	
Connector	DT07H-12-8PN or Equiv.	PTIH-10-6P or Equiv.
Optional Mating Connector	PT06A-12-8S or Equiv.	PT06A-10-6S or Equiv.

- \* High Sensitivity
- \* High Performance Fluid Rotor Design





### I/O Connector Pin Functions:

SR-100FR		
Pin	Function	
Α	Sig & Pwr Return	
В	Current Output	
С	Signal Output	
D	Test -	
Е	-15 VDC	
F	+15 VDC	
G	Test +	
н	Spare	

SR-200RFR		
Pin	Function	
Α	Sig & Pwr Grd	
в	+28V Input	
С	Test	
D	Eo (Voltage Out)	
Е	Io (Current Out)	
F	Io (Current Ret)	

### **Ordering Information:**

 SR-100FR(+/- X Rad/Sec<sup>2</sup>)
 M

 SR-200RFR(+/- X Rad/Sec<sup>2</sup>)
 M

 Std Accelerometer w/Connector
 M

 Range +/- X Rad/Sec<sup>2</sup> (Required)
 M

 Mating Connector Supplied (Optional)
 M



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