RELIABLE, HIGH PERFORMANCE PRODUCTS — EXCEPTIONAL SERVICE

FEATURING: Precision Linear & Angular Accelerometers

All Jewell force-balanced (servo) precision accelerometers are fully self-contained. They connect to a DC power source and a readout or control device for a complete operating system. The output is a high-level DC signal proportional to acceleration and tilt angle sine from as little as ±0.010g to ±20g full range. Jewell precision accelerometers respond to change in velocity as small as 1µg. Hysteresis is less than 0.0005% of full range output and vibration rectification is less than 50µG/G2 are available. Review the products in this guide for more information.

Custom Application-Specific Solutions

Jewell Instruments provides both standard and custom solutions for a diverse group of industries, such as aerospace, medical, industrial, telecommunications, and rail markets. We manufacture our components completely in-house and work directly with our clients, maintaining control over the entire development processes. Our legacy of experience and success, and the expertise of our engineering team, mean customers benefit from extensive resources at their disposal.

Connecting Experience, Quality & Expertise

For over 60 years, Jewell Instruments has provided commercial and industrial sensors and controls, meters and avionics, and industrial test equipment solutions to a range of global markets. Our ISO 9001:2008 certification ensures that our customers receive products and systems with the dependability and reliability that their applications demand. Jewell Instruments' experienced engineering team works with customers to produce high quality, reliable products that meet or exceed their requirements.

Exceptional Customer Service

We specialize in reliability, value and responsiveness. Cooperation and joint planning between our engineering groups and our clients drive our customer care experience. We work as an extension of our customers' engineering and manufacturing teams to solve problems, improve applications, shorten lead-times and bring more value to their products and services. Superb customer support is the cornerstone of our many successful, long-term customer relationships.

Jewell Facilities

Jewell offers two, fully modernized manufacturing facilities, one in Manchester, New Hampshire and one in Barbados, West Indies.

Manchester Facility

Barbados Facility

Other Product Groups Available:

Rail Transportation Selector Guide

Force-Balanced Precision Inclinometer Selector Guide

Electrolytic Tilt Sensors and Accessories Selector Guide

Jewell Instruments is a world leader in the manufacture and distribution of panel meters, avionics components, inertial sensors, and precision solenoids. From sales and design, manufacturing and testing, and delivery and support, Jewell Instruments offers complete customer care and engineering expertise. We also offer two, fully modernized manufacturing facilities, one in Manchester, New Hampshire and one in Barbados, West Indies to handle the most stringent manufacturing requirements with a cost-competitive advantage.

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Force-Balanced Precision Accelerometer
Selector Guide

Jewell Instruments

Accelerometer Selector Guide

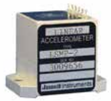
Angular Accelerometers

ASB Series

- Bandwidths to 200 Hz
- IP68 Seals
- Available 28V Aircraft Input
- Connector or Pin Config
- Aerospace Quality and Reliability

- Antenna Stabilization
- Motor Torque Measure-ment & Control
- Vehicle Ride Analysis
- Autopilot System Input
- Optical System Stablization

ASMP Series



- Bandwidths to 200 Hz
- 1.05" Cube Housing Size
- ±15 Standard Input Voltage
- Aerospace Quality & Reliability

- Motor Torque Measure-ment & Control
- Automotive Angular Acceleration Testing
- Autopilot System Input
- Optical System Stablization

ASXC Series

- Standard Ranges 2 to 100 rad/sec2
- Resolution Better than 0.001 rad/sec2
- Very High Output to Size Ratio
- Self-test for Greater than 95% Fail Detect
- -30°C to 70°C Operating Temperature Range

- Aircraft Stability Augmentation
- Racecar Performance Testing
- Camera Angular Motion Stabilization
- Autopilot System Input
- Rotating System Performance Testing
- Weapons Control Targeting

Linear Accelerometers

LCA-100 Series

- Built-in Output Filter
- DO-160 Quality Versions
- Available 28V Aircraft Input
- Connector or Pin Config
- 0.20% 10-year Scale Factor

- Aircraft Flight Controls
- Aircraft Fatigue Monitoring
- Aircraft Autopilot System Input
- Aircraft Wind-shear Detect
- Double Integrated Railcar Pos
- Train Performance Testing

LCF-200 Series

- ±0.5g to ±5.0g Full Range
- Filtering 5 to 100 Hz Bandwidth
- Exceptional Bias and Scale Factor
- High Level ±V dc Output
- 1,500g Shock Capability

- Geophysical Testing
- Railcar Accel/Decel Control
- Ocean Buoy Accel Sensing
- Aircraft Stability Control
- Aircraft Flight Testing
- Vehicle Roadway Profiling

LSM Series

- ±0.5g to 20g Full Range
- Filtering to 200 Hz Bandwidth w/0.6 Damping
- Satellite Application Reliability
- Better than 20µg Resolution at 10g Full Scale
- -55°C to +95°C Operating Temperature Range

- Satellite Nutation Sensing
- Radar Leveling
- Fire Control
- AHRS System Input
- Attitude Heading and Reference System

LSB Series

- Train Braking & Banking
- Missile Orientation
- Autopilot Systems
- Train Performance Testing
- Performance Testing

Dual Axis Accelerometers

LCF-2530

- ± 0.25 g to ± 5.0 g Full Range
- Dual Axis Version of LCF-Series
- High Accuracy and Superior Repeatability
- -40°C to +80° C Operating Temp Range

- Satellite Nutation Sensing
- Train Braking and Banking
- Performance Testing
- Attitude Heading and Reference Systems
- Autopilot

Triple Axis Accelerometers

LCF-3500

- ±0.5g to ±5.0g Full Range
- Filtering 5 to 100 Hz Bandwidth
- Exceptional Bias & Scale Factor
- High Level ± Vdc Output
- 1,500 Shock Capability
- Tri-Axis

- Geophysical Testing
- Railcar Acceleration & Deceleration Control
- Ocean Buoy Acel Sensing
- Aircraft Stability Control
- Vehicle Roadway Profiling
- Tri-Axis Acceleration Applications

Digital Accelerometers

DXA-100/200 Series

- Digital Output
- Resolution 8 µg
- Mechanical Shock 1500 g 1msec ½ sine
- Industry Standard RS485 & RS422 Output
- High Precision and Performance
- Low Noise

- Radar/Antenna Control
- Structural Monitoring
- Linear Acceleration/Deceleration Measuring
- Automatic Train Position Control
- Seismic Monitoring
- Track Leveling

Performance Specs

	ASB Series			ASMP Series			ASXC Series					LCA-100 Series				LCF-200 Series				LSM Series						LSB Series						LCF-2530					LCF-3500				DXA-100/200 Series				
Input Range (Ang: rads/sec², Lin: g)	±200	±500	±1000	±200	±500	±1000	±2	±10	±20	±50	±100	±0.5	±1.0	±2.0	±5.0	±0.5	±1.0	±2.0	±5.0	±0.5	±1.0	±2.0	±5.0	±10.0	±20.0					± 0.25	± 0.50	± 1.00	± 2.00	± 5.00	±0.5	±2.0	±5.0	± 0.25	± 0.50	±.87	± 1.00	± 2.00
Full Range Output (FRO V± 1.0%)	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0	±5.0					± 5.0	± 5.0	± 5.0	± 5.0	± 5.0	±5.0	±5.0	±5.0	± 0.25	± 0.50	±.87	± 1.00	± 2.00
Non Linearity (%FRO' Max.)	0.5	0.2	0.1	0.5	0.2	0.1	1.0	1.0	1.0	1.0	1.0	0.05	0.05	0.05	0.02	0.05	0.05	0.05	0.02	0.05	0.05	0.05	0.10	0.50	0.25					0.02	0.02	0.02	0.05	0.10	0.05	0.05	0.05	0.02	0.02	0.03	0.05	Test Case
Scale Factor (Ang: V/rad/sec² Lin: V/g, Nom.)	0.025	0.010	0.005	0.025	0.010	0.005	5.000	1.000	0.500	0.200	0.100	10.0	5.0	2.5	1.0	10.0	5.0	2.5	1.0	10.0	5.0	2.5	1.0	0.5	0.25					20.00	10.00	5.00	2.50	1.00	10	2.50	1.00	0.05	0.05	0.05	0.05	0.05
Scale Factor Temp Sens (% reading, PPM/°C, Max	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	180	180	180	180	100	100	100	100	200	200	200	200	200	200					100	60	60	100	100	100	100	100	100	100	100	100	100
Bias (Ang: rad/sec², Lin: g, Dig: g, Max.)	±1.0	±4.0	±4.0	±1.0	±4.0	±4.0	±.005	±.020	±.030	±.080	±.100	±0.01	±0.01	±0.01	±0.01	±0.005	±0.005	±0.005	±0.005	±0.050	±0.010	±0.010	±0.010	±0.020	±0.050					±0.001	±0.002	±0.004	±0.005	±0.005	±0.005	±0.005	± .005	±.0008	±.0008	±.0008	±.0008	±.0008
Bias Temp Sens (FRO, PPM/°C, mg, Max.)	±0.05	±0.05	±0.10	±0.40	±0.40	±0.40	±0.001	±0.001	±0.001	±0.001	±0.001	100.0	100.0	100.0	100.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	100.0	100.0	100.0					0.001	0.0005	0.0003	0.0003	0.0003	100.0	100.0	100.0	90.0	90.0	90.0	90.0	90.0
Bandwidth (-3db) (Hz, Nom.)	70	100	120	70	100	120	100	150	200	170	170	60	60	60	60	30	30	30	30	70	100	140	100	140	160					30	30	30	30	30	30	30	30	30	30	30	30	30
Damping Ratio (Nom)	0.6	0.6	0.6	0.6	0.6	0.6	0.9	0.9	0.9	0.9	0.9	-	-	-	-	-	-	-	-	0.5 to 0.9										-	-	-	-	-	30.0	30.0	30.0	-	-	-	-	-
Transverse Axis Misalignment (°, Max.)	±1.0	±1.0	±1.0	±1.0	±1.0	±1.0	±0.025	±0.025	±0.025	±0.025	±0.025	±0.71	±0.71	±0.71	±0.71	±0.71	±0.71	±0.71	±0.71	±0.71	±0.71	±0.71	±0.71	±0.71	±0.71					±0.50	± 1.00	± 1.00	± 1.00	± 1.00	±1.0	±1.0	±1.0	±0.15	±0.15	±0.15	±0.15	±0.15
Resolution and Threshold (rad/sec², µg, Max.)	0.005	0.005	0.005	0.004	0.010	0.020	0.001	0.001	0.002	0.005	0.010	10.0	10.0	10.0	10.0	1.0	1.0	1.0	1.0	10.0	10.0	10.0	10.0	20.0	50.0					1.0	1.0	1.0	1.0	1.0	10.0	10.0	10.0	8.0	8.0	8.0	8.0	8.0

Electrical

	ASB Series			ASMP Series			ASXC Series					LCA-100 Series				LCF-200 Series				LSM Series						LSB Series						LCF-2530					LCF-3500				DXA-100/200 Series				
Number of Axis	1			1			1					1				1				1											2					3				1 or 2				
Input Voltage (Vdc)	±12 to ±18			±15 to ±10			±15 to ±10					±12 to ±18				±12 to ±18				±12 to ±18											±12 to ±18					±12 to ±18				±10 to ±30				
Input Current (mA, Nom.)	±10			±10			±25					±25				±15				±10											±50					±15				DXA-100 ±80 mA/DXA-200 ±70 mA				
Output Impedence (Ohms, Nom.)	10.0K	4.0K	5.0K	4.0K	4.0K	4.0K	100.0					100.0				100.0				10.0K	5.0K	2.5K	5.0K	2.5K	2.5K						100.0					100.0				-				
Noise (Vms, Max.)	5.00	5.00	5.00	0.005	0.005	0.005	0.030	0.030	0.050	0.050	0.050	0.005				0.001				5.000											0.002					0.002				0.005				

Environmental

	ASB Series			ASMP Series			ASXC Series					LCA-100 Series				LCF-200 Series				LSM Series						LSB Series						LCF-2530					LCF-3500				DXA-100/200 Series				
Operating Temperature Range	-55°C to +95°C			-55°C to +95°C			-30°C to +70°C					-55°C to +85°C				-40°C to +80°C				-55°C to +95°C											-40°C to +80°C					-40°C to +80°C				-40°C to +70°C				
Survival Temperature Range	-65°C to +105°C			-65°C to +105°C			-40°C to +70°C					-60°C to +90°C				–40°C to +90°C				-65°C to +105°C											-60°C to +90°C					-60°C to +90°C				-40°C to +75°C				
Vibration	-			-			-					0 g				20 g				20 g											20 g					20 g				20 g				
Shock	100g, 11msec, 1/2 sine			100 g			100g, 11msec, 1/2 sine					100 g				1000g, 1 msec, 1/2 sine				100 g, 0.011 sec, ½ sine											1000g, 1msec, 1/2 sine					1000g, 1msec, 1/2 sine				1500g, 1msec, 1/2 sine				
Seal	MIL-STD-202, Method 112			MIL-STD-202, Method 112			MIL-STD-202, Method 112					MIL-STD-202, Method 112				MIL-STD-202, Method 112				MIL-STD-202, Method 112											MIL-STD-202, Mtd 112					MIL-STD-202, Mtd 112				MIL-STD-202, Mtd 112				

Mechanical

	ASB Series			ASMP Series			ASXC Series					LCA-100 Series				LCF-200 Series				LSM Series						LSB Series						LCF-2530					LCF-3500				DXA-100/200 Series				
Weight	3.0 oz.			2.0 oz.			8.5 oz.					5.0 oz.				4.0 oz.				LSB - 5.0 oz., LSB - 2.0 oz.											8.0 oz.					16 oz.				DXA-100 8 oz./DXA-200 10 oz.				
Dimensions	1.10" W x 2.60" L x 1.235" H 1.657" Over Connector			1.05" W x 1.50" L x 1.235" H 1.39" Over Terminal Pins			1.40" Dia x 2.97" L x 2.50" Flange W 3.44" Over Connector					1.38" W x 3.10" L x 1.50" H				1.38" W x 3.10" L x 1.50" H				1.10" W x 2.60" L x 1.225" H (1.857" over connector) 1.05" W x 1.50" L (1.05" body) x 1.235" H (1.39" over pins)											3.609" L x 1.62" W x 1.83" H					3.25" L x 2.75" W x 2.75" H				3.609" L x 1.62" W x 1.83" H				
Custom Ability	Yes			No			Yes					No				No				LSM - Yes, LSB - No											Yes					Yes				Yes				