



DATASHEET

# MOTION CUEING SYSTEMS

Stirling Dynamics supports the world's leading simulator manufacturers in delivering state-of-the-art training platforms for complex and demanding military applications. We provide our customers with intelligent, integrated and highly dynamic seats and G-seats for combat, aircraft, lead-in trainers and helicopter training simulators. Stirling's motion cueing systems offer some of the most advanced and compact technology on the market today.

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# DATA SHEET - Motion Cueing Systems

Motion Cues	Typical Displacement	Typical Velocity	Typical Acceleration
Seat Pan Roll	±20mm (±0.79in)	100mm/s (3.94in/s)	0.5g (4,905mm/s <sup>2</sup> , 193in/s <sup>2</sup> )
Seat Pan Heave	±20mm (±0.79in)	100mm/s (3.94in/s)	0.5g (4,905mm/s <sup>2</sup> , 193in/s <sup>2</sup> )
Back Pad Sway	±37.5mm (±1.48in)	100mm/s (3.94in/s)	0.5g (4,905mm/s <sup>2</sup> , 193in/s <sup>2</sup> )
Back Pad Surge	±17.5mm (±0.69in)	100mm/s (3.94in/s)	0.5g (4,905mm/s <sup>2</sup> , 193in/s <sup>2</sup> )
Lap Harness	±20mm (±0.79in)	100mm/s (3.94in/s)	0.5g (4,905mm/s <sup>2</sup> , 193in/s <sup>2</sup> )
Shoulder Harness	±20mm (±0.79in)	100mm/s (3.94in/s)	0.5g (4,905mm/s <sup>2</sup> , 193in/s <sup>2</sup> )
Seat Height	±20mm cueing (±0.79in) total travel 254mm (10in)	250mm/s (9.84in/s)	1.0g (9,810mm/s <sup>2</sup> , 386in/s <sup>2</sup> )

Associated Systems		
	Feature	Performance
Anti G-Suit	Operating pressure range	0 – 2.5 psi
	Safety pressure relief limit	3.0 psi
	Time to achieve 95% inflation (0 – 2.5 psi)	<0.1s
	Time to achieve 95% deflation (2.5 – 0 psi)	<0.5s
	Continuous flow capability	200 l/min
Sensed functions (seat type dependent)	Multiple sensing options can be provided including; go-forward lever, emergency oxygen handle, armed/safe lever, ejection firing handle.	
Tactile Transducers	Providing additional high frequency inputs (20 – 80Hz) to the seat system to replicate inputs such as gun-fire and blade passing frequencies.	
System Monitoring	The MCS system includes comprehensive reporting of system commands, operation states and error reporting. Monitoring and diagnosis information is available via messaging including initialisation built in test (IBIT) and continuous BIT.	

Buffet Performance		
Amplitude at 1Hz	±3.0mm	
Amplitude at 20Hz	±0.6mm	
Amplitude at 30Hz	±0.3mm	

Specification	Description
Operating Load	Up to 115kg (equivalent pilot mass)
Latency	Total demand-to-output latency, inclusive of system frame time, is less than 50ms
Documentation Pack	<ul style="list-style-type: none"> <li>User guide</li> <li>Maintenance manual</li> <li>Message definition document</li> <li>Engineering interface specification</li> <li>Graphical user interface software and documentation</li> </ul>
Power Requirements	Single or three phase supply, 2-4 kW*
Interface to Host	Ethernet (UDP)



\*Power Requirements Dependent on Seat Type and Customer System Requirements