

Dual Loop Master Controller

The Xcite System Master Controller provides all dual loop functions needed for accurate closed loop control and display of the static and dynamic test variables, while producing the highest electro-hydraulic frequency response. At the heart of each Xcite System is the Master Controller, a compact electronic control package which provides all of the controls and displays necessary to operate a controlled force or torque exciter system. The Xcite Master Controller is unique in that it provides electro-hydraulic excitation over a broad frequency range, unprecedented by any previous electro-hydraulic excitation system. It achieves its great frequency range through the use of sophisticated circuitry, high voltage inputs to the servovalve and compression control of the dynamic feedback variable in addition to the conventional servo control of the static loop. Static parameters such as force or displacement may be matched with dynamic control variables such as force, displacement, velocity, acceleration or strain for maximum test flexibility.



Master Controller

- Independent static and dynamic control loops
- Compression control of the dynamic loop
- Direct power amp input for use with random shaker control system
- Adaptable to other exciter heads by swapping one printed circuit card
- LVDT and strain gauge signal conditioning
- Hydraulic power supply control
- Large, easy to read, meter indications of static and dynamic controller variable levels
- Factory preset control loop circuitry tailored to each model exciter head

Xcite Dual Loop Master Controller The dual control loop design of the Xcite Master Controller affords three major advantages to the structural dynamist. First, the compression control of the dynamic loop changes the amplitude of the system drive signal dynamically to adjust the displacement output of the exciter to maintain a constant sine force even as the compliance of the structure changes during frequency sweeps.



This allows the study of non-linear structures by developing a family of data curves with varying levels of constant static and dynamic forces.

Second, the dual loop philosophy allows the mixture of feedback signals such as static displacement and dynamic force when testing compliant structures such as an automotive suspension or engine mounting subsystem. The static control may be force or displacement, while the dynamic control may be force, displacement, velocity or acceleration.

Third, a user selectable power amplifier input allows the dynamist to use either an external digital shaker control system or FFT analyzer DAC to drive the system with random, shaped random, white noise,

chirp, pulse or user-generated waveforms. Master Controllers are rack-mountable and may be located hundreds of feet from the exciter head and power supply.

Xcite Dual Loop Master Controller Statistics

Displays		Pump Control	On/ Off
Static Variable	Force or Displacement	Interlock	Interlock Connector for Ext. Signals
Dynamic Variable	Force or Displacement	Dither Control	400 Hz On/ Off
Excitation Modes	Standby/ Static/ Static + Dynamic	Static Preload	Switch Selectable Tension or Compression
Control Variables		Power Requirements	115 VAC/ 3 A; 220 VAC/ 1.5 A
Static	Force/ Displacement/ Ext. Transducer	Dimensions	
Dynamic	Force/ Displacement/ Ext. Transducer	Width	19 inches (489 mm) Rack Mountable
Set Point Control	Static and Dynamic Setpoints	Depth	13 inches (330 mm)
Static Loop Gain	Fixed or Variable - Switch Selectable	Height	5.25 inches (133 mm)
Load Cell	Signal Conditioning and Calibration	Weight	20 lbs (9 kg)
LVDT	Signal Conditioning and Calibration	Inputs	Program Input for Constant Amplitude Sine Testing External Power Amp Input for Random, Burst & Chirp
Frequency Modes		Standby Level	User Adjustable Standby Force or Displacement Levels
Low Frequency	Static Control Variable	External Control Variable Calibration	User Adjustable Calibration for Static and Dynamic Variables
High Frequency	Static Control Variable + Compression Control of Dynamic Control Variable	Outputs	Force or Torque; Displacement; Dynamic Loop Compression Level