

Servo-All-Electric™ Axial Torsional Test System

Model 831LET

Integrated Test System - Static & Fatigue Tests Tension, Compression, Torsion & Combined Modes

Overview

The 831LET is an integrated multichannel test system for static and fatigue tests in tension, compression, torsion and in combined biaxial modes. The controller enables accurate control of all sensed channels including load, torque, axial and angular position and strain if extensometry is available. The controller expands to add signal conditioners, servocontrol outputs and auxiliary data acquisition channels. In fact, the controller is capable of controlling separate test stations with its multichannel software and expansion cards.

Biaxial systems can be configured from a wide selection of actuators to match customer needs such as increased load, longer strokes, or faster movement. These systems are used for testing new materials, medical devices, industrial products and components. The 830 Series requires 220V electric power. They do not require special utilities such as pneumatic air, hydraulics or water needed.

Each System includes:

- Dual column Load Frame
- Torsional Actuator in base
- Linear actuator in crosshead
- Biaxial thrust-torque load cell – fatigue rated
- LVDT position transducer
- Angular Displacement Rotary Transducer
- Two encoders - linear and angular position measurement and control
- Power Packs for each actuator
- Multichannel controller with high resolution signal conditioning, expanded transducer ranges and low noise floor.
- PC with USB bus
- MS Control Software for test setup, control, data acquisition

Compare Servo-all-Electric to Servohydraulics

- Lower maintenance cost
- Lower purchase price
- Lower noise than hydraulic power supplies
- Improved control resolution due to low friction actuators
- Modular Design enables easier system reconfigurations

Model 831LET consists of

E4IM Linear Servoactuator used in 831 load frame

- * Static rating: ± 8.8 kN (2000 lb)
- * Fatigue rating: ± 4.4 kN (1000 lb)
- * Max speed: 100 mm/sec (4"/s)
- * Stroke: ± 75 mm (± 3 ")
- * Encoder position sensor

T Series Torsional Actuators

- * Static rating: Up to ± 200 Nm (1750 in-lb)
- * Rated speed up to 900 degrees per sec
- * Digital encoder for position measurement & control
- * For continuous twist rotation or \pm cyclic testing



2360 Controller Highlights

- The 2360 features the highest data acquisition resolution and accuracy commercially available, which is accomplished via user assignable floating range in engineering units combined with 24 bit data acquisition and digitally programmable signal conditioning, hardware gains and offsets, coupled with 32-bit software gains and offsets. The controller is configured to match LVDT's, strain bridges, accelerometers and high level external signals. Fully synchronous data acquisition across all acquired channels eliminates any need for separate data acquisition systems.
- The 2360 is a flexible advanced servocontroller that is based on latest hardware technology, including
 - Control of 1 to 8 channels,
 - Measurement of up to 96 data acquisition channels,
 - Data throughput of each channel, up to 20 channels total, of 5000 samples per second,
 - Up to 32 channels of signal conditioning,
 - 24 bit signal conditioning data acquisition, with expanded ranges, and low noise floor,
 - Up to 8 encoders
 - High speed loop closure – up to 20 KHz
 - Up to 32 channels digital input and output, including FET option – converts controller into user programmable logic controller.

Powerful Software Products and Open Architecture Software technology

Proven multichannel MS Control Software is included to enable users to create customized test setups, produce dynamic wave-shapes, monitor load, torque, position and strain feedback data using live scopes and displays, set limits, tuning, calibration and report generation.

Proprietary Global Data Sharing (GDS) software platform makes it possible for customers to create special real time applications that can run alongside the standard control software. GDS enables added real time measurement and control functionality using MS Excel macros and makes it possible to permit concurrent tasks to share real-time data without slowing down real time processes of the control software. Real time data are simultaneously made “visible” to unlimited tasks or applications for test control and data acquisition without software performance degradation.

- Real-time Microsoft Office interface permits real time data transfer into Word, Excel, PowerPoint, Outlook and Access. Microsoft Office VB macros can be used to develop new GDS application software without normal performance overheads and constraints.
- Open source application software permits users to change code of provided applications software and to add new functionality, reducing dependence on us as a vendor. Also gives flexibility to test developers to change, adapt or enhance application software to suit their requirements. Frees user from licensing overheads.

831LET Specifications

Model	E4IM – Linear Actuator	Many choices of Torsional Actuators
Static Capacity	± 9 kN (± 2000 lb)	Up to ± 200 Nm (± 1750 in-lb)
Fatigue Rating	± 4.5 kN (± 1000 lb)	Up to ± 200 Nm (± 1750 in-lb)
Stroke	125 mm (5")	Continuous twist to 10 turns or cyclic rotation
Cyclic performance	to 15 Hz	to 15 Hz
Velocity Max	100 mm/s (4"/s)	50 rev per sec
Performance at 5 Hz (ref)	± 2.5 mm (± 0.1")	± 25 degrees

Notes – Each system is configured to match customer specific load and speed operating goals. Specifications are based on common test samples so results may vary depending on actual conditions. Performance curves are available. All speed specifications based on 220V Power Pack. Discuss all critical specifications with an application engineer

Dimensional and Utility Requirements – Load Frame

Load Frame Model	831 - 22	831 – 22 - 48
Column Clearance	550 mm (22")	550 mm (22")
Vertical Test space	0 to 900 mm (36")	0 to 1200 mm (44")
Weight	300 lb	300 lb
Power Requirements	220 VAC single phase	220 VAC single phase