

DC1X Digital Controller

Powerful, Rugged and Reliable.

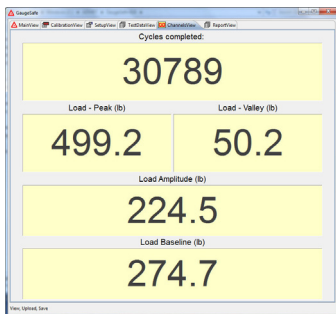
A versatile digital controller for performing cyclic fatigue tests up to 40Hz



The ADMET DC1x Controller is a single-channel PID servo controller that provides AC, DC and quadrature encoder transducer conditioning, basic function generation, hydraulic pressure control, and a servo valve driver circuit. A four line display and 24 key tactile keypad provides an easy-to-use interface for creating test setups and adjusting control parameters during test. The DC1x includes a USB link to ADMET's GaugeSafe software used for viewing and editing setups, viewing waveforms and peak/valley/cycle data real-time on a Windows based computer. The GaugeSafe software is included with each DC1x and also allows users to store waveform and peak/valley/cycle data to disk in ASCII delimited format for easy import into common spreadsheet programs.

The DC1x controller is a cost-effective solution for basic cyclic fatigue testing applications. It is compatible with all ADMET servo-hydraulic and electro-mechanical dynamic test systems and can also be retrofitted to a wide variety of testing systems from other providers.

Users specify sine, square or triangle waveforms. Standard with the DC1x is an amplitude compensation program that tracks the feedback signal and automatically adjusts amplitude and set point values until the desired peak and valley levels are achieved. This occurs continuously, ensuring all levels remain in tolerance; ideal for cyclic tests under load control where test system or specimen properties vary over time. Also available are user definable force, position, under peak and over valley limits. Users configure the limits to terminate the test and shut down the system when tripped. At test end GaugeSafe can also be setup to notify users via email.



Features

All phases of operation are controlled through the 24 key keypad. Test parameters set prior to test include:

- Waveform Type: Sine, Square or Triangle
- Control Channel: Force or Position
- Amplitude, Set Point, Frequency (40Hz Max)
- Number of Cycles
- Travel to Set Point & Travel to Zero Speed
- Position Jog Rate
- PID, Amplitude and Set Point Control Gains
- Max/Min Force & Position Limits
- Under Peak and Over Valley Limits
- Limit Actions: Ignore, Hold Set Point, Turn System ON/OFF when limits are tripped

Parameters adjusted through the keypad during test:

- PID, Amplitude and Set Point Control Gains
- Amplitude and Set Point when Amplitude Control is OFF
- Turn Amplitude Control ON/OFF
- Turn Limits/Interlocks ON/OFF

During test users can toggle between the following displays:

- Live Peak/Valley Values
- Live Amplitude and Set Point Values
- Max/Min Peak and Max/Min Valley Values
- Number of Cycles completed
- Max/Min Control Voltages

Test System Functions initiated through the keypad:

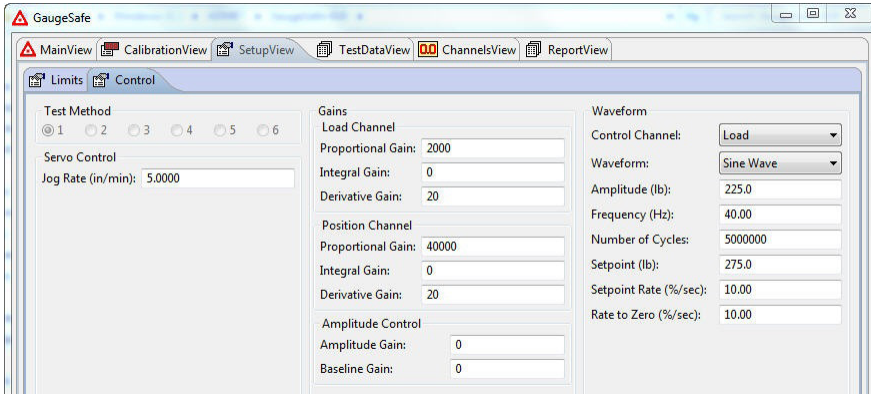
- Test System ON/OFF, Start Test, Stop Test
- Set Hi/Low Hydraulic Pressure & Hi/Low Speed
- Travel to Set Point, Travel to Zero, Jog Up, Jog Down

Connections to the DC1x are made through the rear panel and include:

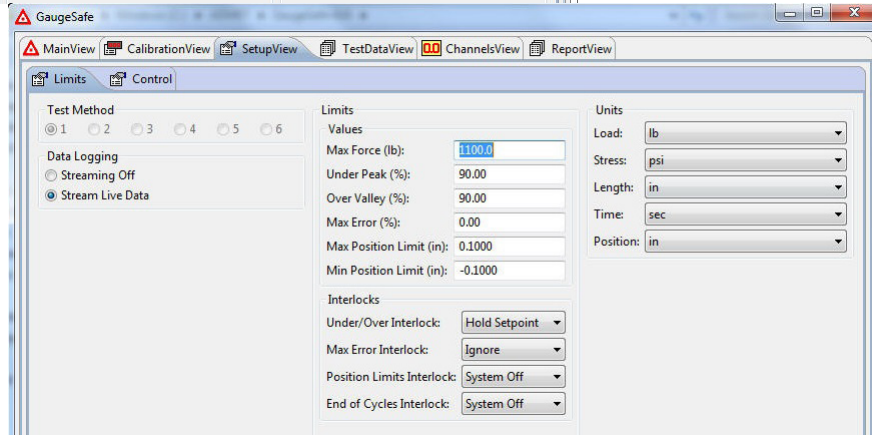
- Force Input: Analog
- Position Input: Analog or Quadrature Encoder
- Machine IO
- USB port

Test With Certainty.

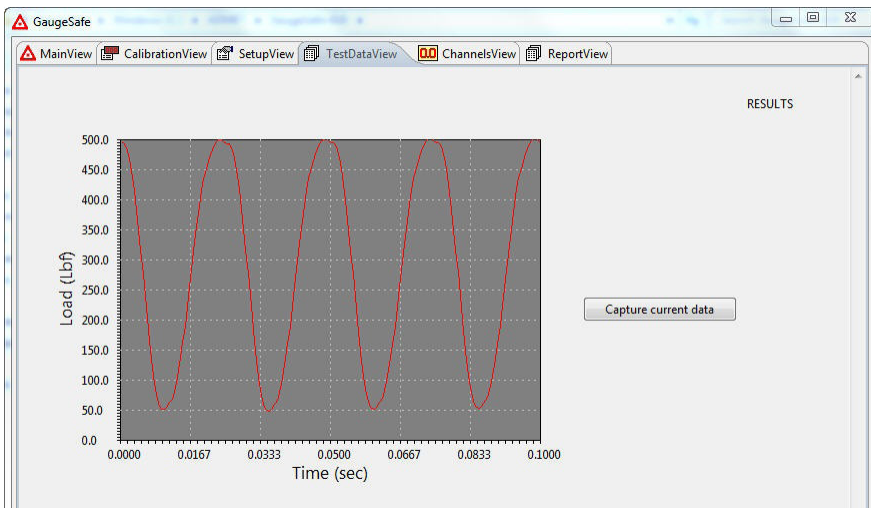
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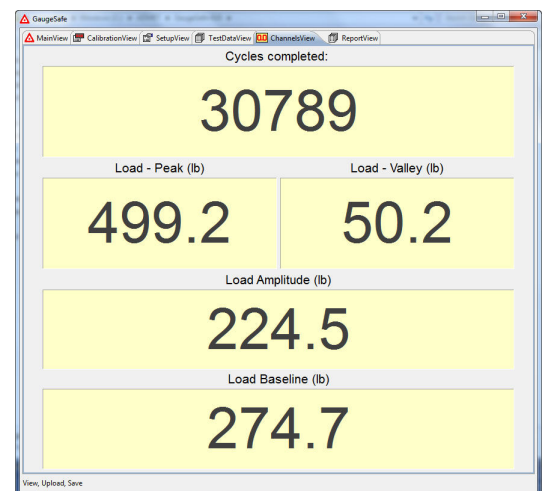
GaugeSafe is a Windows based program that communicates with the DC1x Controller through the USB port. With the push of a button test parameters and transducer calibration information can be sent from the DC1x to GaugeSafe. This information can be viewed, edited and saved on the computer running GaugeSafe and can also be uploaded into the DC1x Controller.



GaugeSafe Limits and Control Tab Setup Views.



Live Test Data View

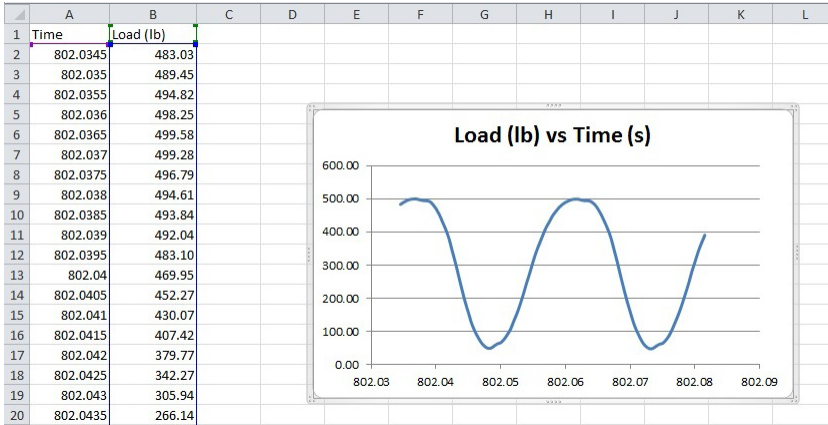


Live Channels View

During test GaugeSafe provides live Test Data and Channel views. The Test Data view displays a real-time plot of the waveform. The Test Data view features a Capture Current Data button which saves the live XY data to an ASCII delimited file. The Channels view displays the Number of Cycles completed plus the current Peak, Valley, Set Point and Amplitude values. In addition, it writes the Peak and Valley values to an ASCII delimited file for each cycle.

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GaugeSafe Live XY Data Export to Excel.

The live XY data stored to disk when users press the Capture Test Data button can be opened in common spreadsheet programs.

The Peak/Valley data for each cycle is automatically stored to disk during test. Users can view the Peak/Valley data in common spreadsheet programs and enables the users to generate a statistical summary of each value for the entire test.

	A	B	C	D	E	F	G
1	Cycle Number	Load - Peak(lb)	Load - Valley(lb)				
24621	24989	499.07	47.25				
24622	24990	499.72	50.72				
24623	24991	499.29	49.20				
24624	24992	499.27	49.06				
24625	24993	499.98	49.99				
24626	24994	500.57	50.56				
24627	24995	501.14	52.33				
24628	24996	501.06	50.01				
24629	24997	500.03	51.49				
24630	24998	499.82	50.74				
24631	24999	498.63	48.71				
24632	25000	500.16	49.08				
24633	25001	500.25	49.39				
24634	25002	499.44	48.90				
24635	25003	501.21	50.01				
24636	25004	499.82	49.63				

GaugeSafe Peak/Valley Data Export to Excel.

System Specifications

Load Input Compatibility	
Sensitivity	User selectable from 1mv/v to +/- 2.5Vdc
Excitation	5 Vdc
Accuracy	DC1x plus Transducer-Better than 0.5% of reading from 1% of full scale to full scale (Exceeds ASTM E4).
Resolution	1 part in 8 million (approx.)
Sampling Rate	Up to 2000 Hz
Display	
Type	4 lines x 20 character x 0.4" h alphanumeric LCD
Power Requirements	
Voltage	100-240 VAC 50-60 Hz
Size	
Dimensions	9.375" W X 8.625" H x 4.125" Dp
Software	
	GaugeSafe Dynamic, USB connection between DC1x and computer

