DAV ELECTRONICS

DC EMULATOR

DC POWER SYSTEM AND COMPONENT TESTING

HIGHLY DYNAMIC DC LOAD / SOURCE FOR POWER SYSTEMS DEVELOPMENT AND HARDWARE IN THE LOOP (HIL) TESTING

- **Wide Bandwidth (to 20kHz) for high power swept frequency testing for resonance identification,**
- **Inject controlled noise/ripple onto DC Bus**
- **Accurate reproduction of captured/ simulated waveforms**
- **Full Power Slew <100uS**
- **Latency - 1uS from command to output**
- **High Frequency Load**

+ Performance
+ Endurance
+ Production

TESTING THE FUTURE®

TESTING THE FUTURE®

DC POWER SYSTEM AND COMPONENT TESTING

HIGHLY DYNAMIC DC LOAD / SOURCE FOR POWER SYSTEMS DEVELOPMENT AND HARDWARE IN THE LOOP (HIL) TESTING

DC EMULATOR

HIGH PERFORMANCE. D&V Electronics' DC Emulator (DCE) offers superior performance that enables you to conduct required testing of electrified vehicle components and systems, with capacity for future requirements. The increase in quantity and complexity of constant power loads in automotive and aerospace power systems has created the need for a high-power, high-current load capable of superimposing a swept frequency AC component that will rapidly expose and identify resonances. The DCE can emulate constant power loads with controllable bandwidth up to 20kHz.

FLEXIBILITY. Equipped with three user selectable operating modes, three user selectable inputs/outputs, master/slave capability and high power – HIL compatibility, the DCE is ideal for existing and future test labs.

Operating Modes:
- Load (CP, CC, CR, CV)
- Source (low impedance)
- Source (high dv/dt)

Inputs/Outputs:
- Analog (<1uS latency)
- Fiber (<1uS latency)
- CAN (10mS update)

Master/Slave:
- Series for 1000V or ± 500V (1600V or ± 800V)
- Parallel to 1.3MW

OUTSTANDING VALUE. The DCE is priced competitively with other regenerative battery pack test systems, provides best in class fidelity and power slew rates, the ability to add finely controlled AC on top of the DC output, and ultra-low latencies for high power-hardware in the loop testing resulting in outstanding value to the customer. This value is further enhanced by the units flexibility and through energy savings through regeneration to the grid.

Applications

This flexible, re-configurable, dynamic testing capability is ideal for:

- EVs & HEVs: Battery Packs, Chargers, Converters, High Voltage DC Power Systems
- HIL for Dynamic High-Power Source or Load Emulation with Real-Time Simulation
- DC Microgrid Testing
- Alternative Energy Systems
- Aerospace DC Power Systems and Components

DC EMULATOR SPECIFICATION MODEL		
PRODUCT CHARACTERISTICS	**MODEL 105050**	**MODEL 108050**
DC Power	- 100 kW to + 100 kW①	
Current	± 500 ADC (1)	
Voltage	0 to 500 VDC isolated output①	0 to 800 VDC isolated output
Large Signal Bandwidth	> 20kHz Current and Voltage	
Max RMS Current Ripple	150 mA or 0.25% of set-point, whichever is greater	
Max Voltage Error	250 mV or 0.25% of set-point, whichever is greater	
Max Current Error	300 mA or 0.3% of set-point, whichever is greater	
Max Resistance Error	0.5% of set-point	
Max Power Error	50 W or 0.5% of set-point	
Load Mode	Constant Power (CP), Current (CC), Resistance (CR), Voltage (CV) (>10A/uS)	
Source Modes	Voltage (185V/mS, limited by output capacitance)	
	Fast Voltage (>10V/uS)	
Frequency Response	< ± 3dB to >20kHz	
Power Slew Rate	-100% to +100% Rated Power (either direction) in < 100uS	
Efficiency	> 90% at full power	
Power Factor	> 0.98	
THD	≤ 3.5%	
Isolation	Internal Galvanic with high frequency converter	
INTERFACES AND CONTROL (FONT PANEL ACCESSIBLE)		
Graphical User Interface	Labwindows™ based with CAN interface②; 10mS updates; CSV compatible profiles	
Analog	± 10V; 0.5uS Sample Rate; I/O < 1uS latency	
Digital	Deterministic Streaming via Fiber③; 0.5uS Sample Rate; I/O <1uS latency	
Emulation Profile Storage	Size determined by host PC specifications	
Operating Modes	GUI User selectable	
ESTOP	Front Panel Button; Discrete output for facility tie in; Shuts down all power.	
HVIL	Door switches; Discrete output for facility tie in. HV shuts down; control enabled	
FACILITY REQUIREMENTS		
Input (others available)	480VAC/150A 3-phase 4-Wire 60Hz	
Input	120VAC, 1-phase, 6.5 amp (other voltages available)	
Cooling (Water or 50% WEG; non-condensing)	6.5GPM @ 20PSI 30C max coolant	
Physical Size (WxDxH inches)	23 x 42 x 75 with 6" casters	
	Stack Light (add 5 ½ in.), Ships uninstalled	
Weight	1000 lbs	

① Optional Master/Slave GUI to Parallel up to 13 units (1.3MW, 0 to +500V/+800V, 6500A); Series 2 units or paralleled strings (0 to 1600V or ± 800V); N+1 redundancy with auto pickup in <10uS on drop out.

② User required to have Vector CAN compatible interface.

③ Direct input from User TAS or via Optional PC with custom CSV interpretation software to enable high speed streaming of stored profiles; User interface APIs for OpalRT™, and Matlab™ (Speedgoat™); Blackbox support for custom FPGA can be developed.

D&V ELECTRONICS | D&V ELECTRONICS USA
130 Zenway Boulevard, Woodbridge, Ontario Canada L4H 2Y7
sales@dvelectronics.com 1-905-264-7646
www.dvelectronics.com

ISO 9001:2015 CERTIFIED