FTF

High Power Energy Storage Test System

BITRODE
Member of the Schuler Group

Highlights

The FTF is by far the highest power test system in the market today. Scalable to provide a maximum output power of 4MW, the FTF automated test system is designed to provide continuous operation in high power applications where precise control of current and voltage is required.

Key Features

- IGBT Design for efficiency and high performance operation
- Design for 100% duty cycle at max power
- Over-current, under-current, over-voltage and under-voltage protection standard on all models
- No performance loss under voltage control
- Quick disconnects on output leads
- Test control and data management with Bitrode's VisuaLCN™ Lab Client Software
- Constant Current (CC), Constant Voltage (CV), and Constant Power (CP) control
- Program execution is independent from the PC with VisuaLCN™ software
- CE, UKCA, UL and CSA compliant
- Discharge power recycled to AC line for cooler, energy-efficient operation
- Built-in isolation transformer, AC input filter, and DC output filter
- 3rd party software control through Remote Binary Protocol (RBP) via Ethernet connection (RBP sold separately)
- Safety features include circuit shutdown when the cabinet door is open
- Dual output (FTF2) in one cabinet with independent control circuit
- FTF systems configured at time of quote so you get the exact desired system and options

Applications

- Battery Testing, including all advanced chemistries
- Inverter, UPS, Generator, and Flywheel Testing
- Fuel Cell discharge testing
- Drive Cycle Simulation Testing: FUDS, SFUDS, GSFUDS, DST and ECE-15L
- Cycle Testing of EV / HEV / PHEV Battery Packs
- Bi-directional DC Power Supply
- Microgrid Battery Conditioning: Increase lifespan, efficiency and performance battery banks
- Vehicle Drivetrain testing
- Super Capacitor and Ultra-capacitor testing

ISO 9001 REGISTERED COMPANY

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General Specifications

Number of Circuits	FTF1	FTF2	FTF1-HP	FTF2-HP
Voltage configurations	33 - 500 V / 40 - 700 V / 58 - 1000 V (Zero Volt optional)			
Max Current: per circuit	1000A (contact Bitrode for typical configurations)			
Max Power: (per cabinet)	< 300 KW		300 KW to 1 MW	
Accuracy: Current	0.05% Full Scale			
Accuracy: Voltage	0.1% Full Scale			
Peak Efficiency	>92% (typical max power)			
THD	≤ 5%			
Power Factor	≥ 0.98			
Current Rise Time (10-90%)	≤ 4 ms		≤ 8 ms	
Pulse Width	10 ms		20 ms	
Switching Time Chg/Dchg, DchgChg	Zero			
Overshoot	Zero			
Data Acquisition Rate:	10 ms standard (1 ms optional)			
Interface	Ethernet			
Noise Output Level	85 - 90 dB (typical at max power at 12 feet)			
Operation Temperature	0° to 40°C			
Input Voltages	380/400/415/480V ±10% 3Ph (50/60 Hz)			
Approx. Dimensions All units 50" deep x 78" high	49"W	75"W	120"W (300 KW ~ 700 KW) 150"W (700 KW ~ 1 MW)	

* All specifications are subject to change without notice.
** Maximum cabinet power output is not available for all current/voltage combinations. Contact Bitrode for more details.

System Options

- Up to two current ranges per circuit
- Optional inputs (i.e. temperature, voltage and digital inputs/outputs) assignable to any channel
- Digital I/O with functions assigned per individual test program
- Expression-based program limit conditions
- DC Internal Resistance calculation
- Integration with Battery Management Systems: CAN
- Battery Simulation (BattSim) mode for electric motor/generator testing with user-specified controls: voltage, internal resistance, maximum power. Optional protection module available offers an added layer of protection to the FTF in case the inverter, motor controller, or other DUT connected to the FTF fails, loses control, or discharges an amount of energy outside the capabilities of the FTF. The energy is absorbed until the FTF can shut down in a safe controlled manner.
- Parallel BattSim mode for higher current requirements for specific configurations.
- Ramp charge/discharge
- Insulation Monitoring Device
- Constant Resistance Discharge
- Remote Input Output (RIO) Box reduces excessive cable lengths when connecting to remote test station
- Over 300 additional sensor connections available when adding external RIO Box
- External Parallel Controller (PCC) can control up to four circuits for higher power and/or higher current test requirements
- Drive Cycle Conversion utility automates test program development from acquired battery usage data
- Zero Volt option allowing discharge capabilities down to zero volts
- Power PC option that allows 1ms data acquisition and expanded number of programming Steps
- Custom Hardware and Software engineering services
- Environmental chamber control

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