



Avtron Load Bank Products Overview



avtronpower.com



Avtron Power Solutions

Air Cooled Load Banks apply consistent, accurate, measurable, and repeatable electrical loads to power sources. A load bank is a precise test device that converts power into heat.

Simple "load bank" examples



Load banks typically use resistive load elements.

Power Knowledge

▶ [What is a Load Bank?](#)

▶ [Load Bank Basics](#)

Load banks provide one or more types of electrical loads:



Resistive

For testing AC loads at unity power factor.



Reactive

For developing inductive or capacitive load for testing at leading or lagging power factors.



Combined

Resistive/reactive units test generators and their prime movers.

Air cooled load banks are available for low voltage, medium voltage, and direct current applications.

Liquid Cooled Load Banks are purpose built to test liquid cooled environments, which are increasingly common in high-density compute and AI/ML workloads.

- Liquid Cooled load banks are engineered for efficiency, precision, and durability and leverage advanced liquid cooling technology to provide superior load testing. Whether for data centers, renewable energy systems, or industrial power infrastructure, our liquid cooled load banks ensure reliable performance and accurate testing, making them the ideal choice for critical load testing environments.



Key Differentiators



Largest Load Bank Product Portfolio in the Industry



Exceptional Control Technology



Superior Quality



Short Lead Times



Custom Engineering Design Capabilities

Challenges

Ensure critical power is available when needed.



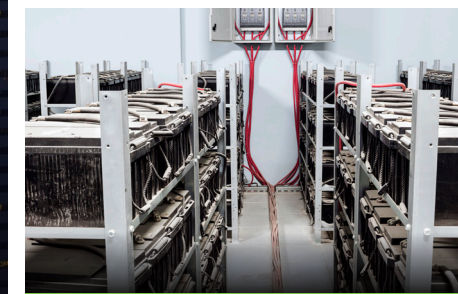
Test backup power source availability and performance.



Provide minimum loads for generator testing and regulatory compliance.



Routine testing to reduce the effects of wet stacking on generator engine and mechanical parts.



Discharge and test battery strings and uninterruptible power supplies.



Commission power and HVAC systems.



Commission liquid cooling distribution systems.

What do these challenges have in common?
All of them can be solved by using a load bank.

Avtron Power Solutions

Critical Power Equipment for a Wide Range of Applications

Data Centers



Load banks are used throughout commissioning, maintenance, expansion and component replacement of most modern data centers.

Microgrid



Microgrids offer an alternative model for power generation and distribution. They must be tested to ensure proper commissioning, operation, and maintenance.

Healthcare



Regular testing of emergency power equipment is necessary to ensure that it will function when utility outages occur, and is required by industry codes and standards.

Commercial Buildings



The substantial cost of downtime makes back-up power reliability critical in commercial institutions. Our load banks ensure critical supplies remain efficient and reliable.

Product Knowledge

Using Load Banks to Meet Codes and Standards

Load Banks are used for



Research and Development



Commissioning and Verification



Maintenance

...and much more.

Military



Load banks enable thorough testing, commissioning, and training, helping to identify and address potential issues proactively, thus enhancing overall operational readiness.

Marine



Marine environments require testing and maintaining the performance of electrical systems on ships, offshore platforms, and other marine applications.

OEMs



Original Equipment Manufacturer applications test and verify the performance, capacity, and reliability of power systems and equipment.

Renewables



Load banks are used to test and commission various components of the systems, to ensure proper functioning, and simulate realistic operating conditions.

Wastewater Treatment Plants



Testing, maintaining, and calibrating generators and other power equipment, ensures that the plant can operate smoothly even during power outages or peak load conditions.

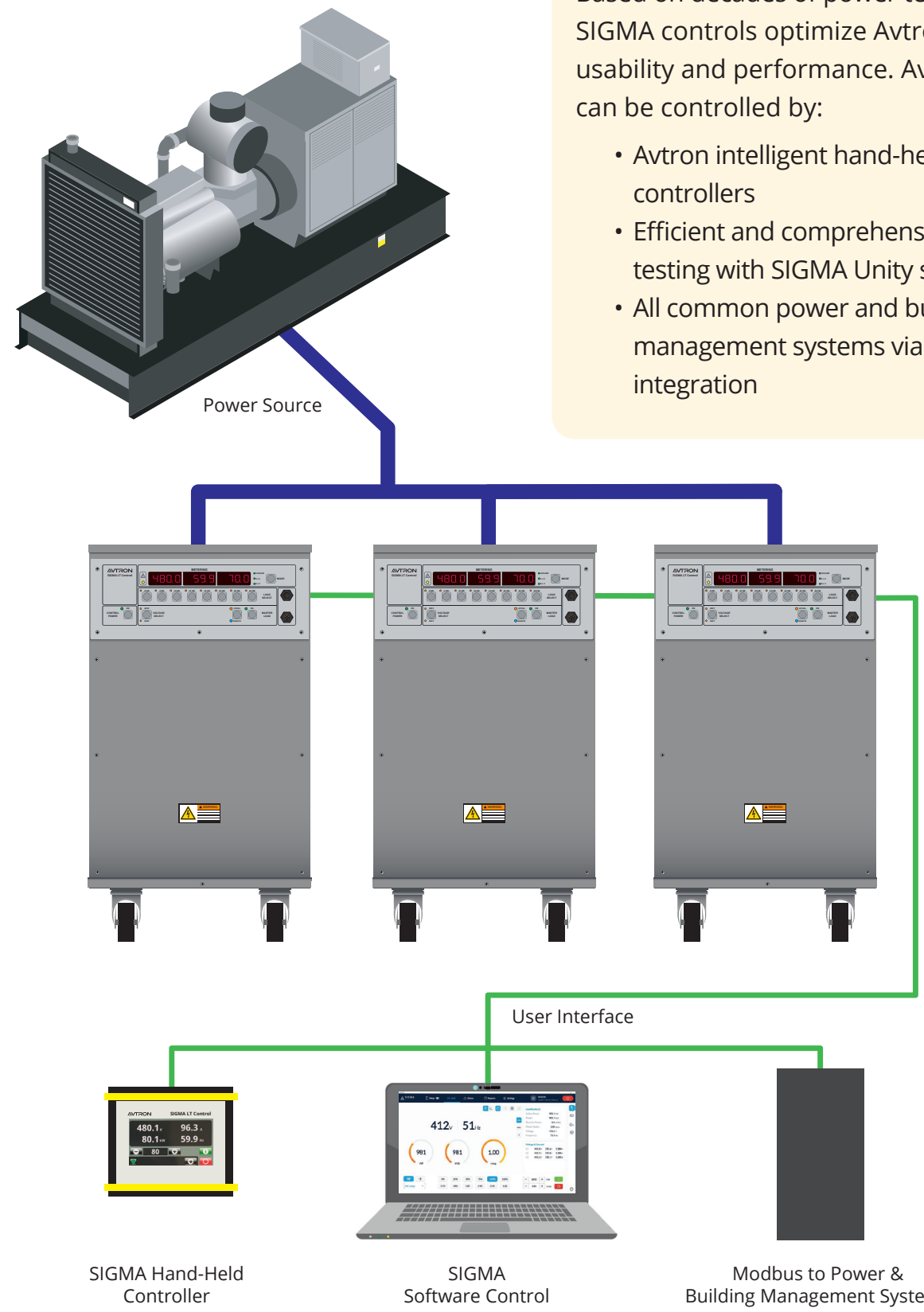
More applications include:

- Power Generation
- Telecommunications
- Utilities
- Rentals
- Oil and Gas
- Nuclear Power
- Aircraft
- Transportation

Load Bank Control

Based on decades of power testing experience, SIGMA controls optimize Avtron load bank usability and performance. Avtron load banks can be controlled by:

- Avtron intelligent hand-held control controllers
- Efficient and comprehensive load bank testing with SIGMA Unity software
- All common power and building management systems via ModBus integration



Product Knowledge

- [Load Bank Controls](#)
- [Advances in Load Bank Control](#)
- [SIGMA Load Control Overview Brochure](#)

SIGMA LT



SIGMA LT controls provide advanced functionality in a pre-configured solution.

- Reliable networking and control of up to 25 load banks
- Sophisticated control and data acquisition using an intuitive easy-to-learn interface
- Digital toggle control panels provide simple local operation and long service life
- Available Wireless Gateway speeds set-up of load bank control networks
- For select Avtron 2000, 3000 and 5000 SERIES load banks

Product Knowledge

- [SIGMA LT](#)
- [SIGMA LT Brochure](#)

SIGMA 2



SIGMA 2 provides sophisticated control and analysis in a custom-engineered solution.

- Control of up to 14 permanent resistive, inductive, or capacitive load banks
- Comprehensive instrumentation, reporting, and data acquisition
- Intelligent embedded software optimizes testing
- For select Avtron 3000 through 9000 SERIES load banks

Product Knowledge

- [SIGMA Hand-Held](#)
- [SIGMA 2 Brochure](#)
- [SIGMA Unity Software](#)
- [SIGMA Unity Brochure](#)

Load Bank Control

		1000	2000	3000	4000	5000	6000	7000	8000	9000	LC
Control Type											
HARDWARE	Standard Toggle	○	○		○	○		○		○	○
	Sigma LT		○	○		○					○
	Sigma 2			○	○	○	○	○	○	○	
	RxMS		○								○
	Auto Load Control	○			○						
	Site Load Correction			○			○		○		
SOFTWARE	Modbus	○			○		○	○	○	○	
	Sigma Unity	○	○	○	○	○	○	○	○	○	○
	Sigma PC Basic		○	○	○	○	○		○		
	Sigma PC		○	○	○	○	○		○		
	Sigma Network Pro		○	○	○	○	○		○		
	RxMS		○								○

Product Knowledge

- [Load Bank Controls](#)
- [Benefits of Networking Load Banks](#)
- [SIGMA Load Bank Control Explained](#)
- [SIGMA LT Digital Toggle Switches](#)
- [SIGMA LT Hand Held Tutorials](#)
- [SIGMA 2 Hand Held Controller Tutorial](#)
- [SIGMA Unity Software Tutorials](#)

Standard Toggle



SIGMA Load Control Platforms



SIGMA LT Digital Toggle



SIGMA 2 Local Control



SIGMA LT Hand-Held Control

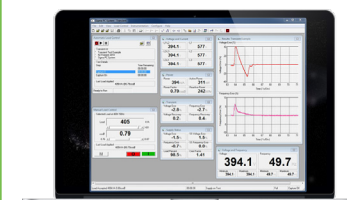


SIGMA 2 Hand-Held Control

RxMS Load Bank Control



SIGMA Load Control Legacy Software



SIGMA PC Software

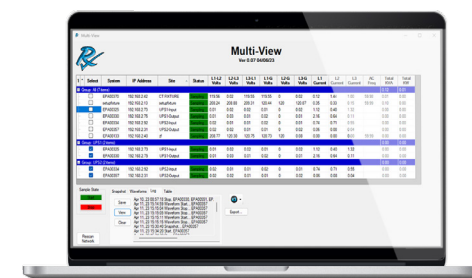


SIGMA PC Basic

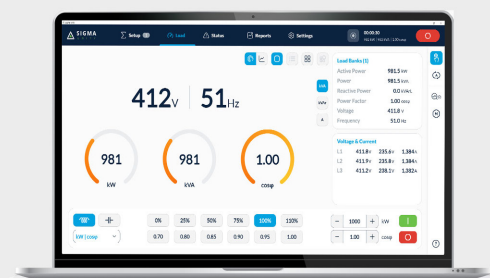


SIGMA Network Pro

Rx Load Control Software



SIGMA Unity Software



Types of Load Banks by Characteristics

Radiator-Mounted



- Cost-effective single voltage solution for resistive loads
- Space-saving design
- Indoor or outdoor applications



Permanent



- Resistive or reactive models
- Stationary applications
- Outdoor applications



Container



- High capacity testing for resistive or resistive/reactive loads
- Constructed in transportable ISO-compliant shipping containers
- Outdoor applications



Portable



- Compact indoor units on casters for easy relocation
- Useful for testing electrical load or cooling system performance
- Dual-voltage models for maximum flexibility



- Indoor units on casters for placement at job site.
- Ideal for commissioning of liquid cooled data centers
- Dual-voltage models for maximum flexibility



Trailer-Mounted



- Medium capacity and high capacity models
- Trailer-mounted for site-to-site use
- Outdoor applications














Product Knowledge

[Applications for Movable Load Banks](#)







[Load Bank Designs & Differences for Portable & Permanent](#)

[Load Bank Testing to Ensure Generator Set Performance](#)

Load Bank Types by SERIES

	SERIES	Electrical Characteristic	Physical Characteristic	Capacity	Voltage		Weight	Control	Certification	Construction
	1000	Resistive	Radiator-Mount	10 - 1500 kW	208 - 600V		Custom, dependent on core dims from generator radiator	Manual Toggle	UL, ULC Listed	Bolted and Riveted
	2000	Resistive	Portable	25 - 700 kW	120 - 600V, DC also available		30 - 1150 lbs. [14 - 522 kg]	SIGMA LT	UL, ULC Listed	Bolted and Riveted
	3000	Resistive	Portable or Permanent	100 - 2200 kW	380 - 690V		397 - 5269 lbs. [180 - 2390 kg]	SIGMA LT or SIGMA 2	CE, IEC, IP 55	Welded Monocoque
	3000 LTR	Resistive	Portable or Permanent	125 - 1250 kW	400 - 480V		552 - 3307 lbs. [250 - 1500 kg]	SIGMA LT	IP 55	Welded Monocoque
	4000	Resistive	Permanent	50 - 4000 kW	400 - 600V		485 - 9590 lbs. [220 - 4350 kg]	SIGMA LT or SIGMA 2	UL, ULC Listed	Bolted and Riveted
	5000	Resistive	Trailer-Mounted	200 - 3000 kW	400 - 600V		5511 - 11023 lbs. [2500 - 5000 kg]	SIGMA LT or SIGMA 2	UL, ULC Listed	Bolted and Riveted
	6000	Inductive, Capacitive, Resistive/Reactive	Permanent or Trailer-Mounted	100 - 2200 kVA	380 - 690V		3925 - 11023 lbs. [1780 - 5000 kg]	SIGMA 2	CE, IEC, IP55	Welded Monocoque
	7000	Inductive, Capacitive, Resistive/Reactive	Permanent	375 - 6250 kVA	120 - 600V		Model dependent	Manual Toggle or SIGMA 2	N/A	Bolted and Riveted
	8000	Resistive, Resistive/Reactive, Medium Voltage	Container	1600 - 6000 kW / 2000 - 6000 kVA	380 - 690V, MV available		18740 - 44092 lbs. [8500 - 20000 kg]	SIGMA 2	CE, IEC, IP55	Welded Monocoque
	9000	Resistive, Medium Voltage	Permanent	500 - 7500 kW	5 - 15 kV		Model dependent	SIGMA 2	N/A	Bolted and Riveted
	LC	Resistive	Portable	500, 720 kW	400, 415, 480V		1763 - 2609 lbs. [800 - 1183 kg] tanks empty	Rx LB Control or SIGMA LT	N/A	Bolted and Riveted or Welded Monocoque

Product Knowledge

-  [Avtron Load Banks](#)
-  [Maintaining Load Banks for Reliability and Longevity](#)
-  [When & How to De-Rate Load Banks](#)
-  [Preventing Load Bank Overheating](#)
-  [Best Practices for Load Bank Testing](#)
-  [Load Bank Selection Criteria](#)

Contact Us:

We have Global Support Network ready to speak to you about your load bank requirements. To find out more or to speak to your local representative, please contact us.



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