



Engineering Excellence in Test Stand Applications

# ACTIVE AC LOAD (eMotor Emulator) FOR INVERTER TESTING

## TST800 SERIES

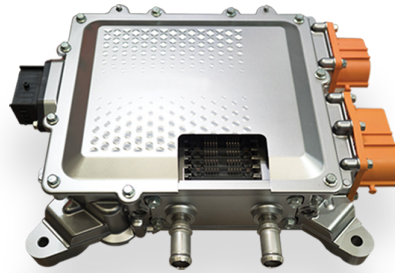
Perfect Balance Between Performance and Price



Revolutionize your electric and hybrid vehicle development with Active AC Load, the ultimate solution for traction inverter testing in electric and hybrid vehicles. Our cutting edge Active AC Load is expertly crafted to meet the rigorous demands of eMotor power, voltage, and current specifications, ensuring that your EV and HEV traction inverters undergo thorough endurance, performance, and validation tests with unmatched repeatability. Featuring a high switching frequency inverter system, this emulator replicates the precise conditions your products will face in the real world. The seamless integration with open communications protocols simplifies connection to your current electric vehicle testing setups. Plus, if you're already using UNICO's regenerative battery emulator system, our modular design ensures easy expansion.

# APPLICATIONS

- Research & Development
- Validation
- Durability
- End of Line Testing
- Test to Global Standards (LV123, ISO26262, and more)
- Communication and integration testing
- eMotor production tolerance checks



# FEATURES

- Software Adjustable Power Factor (Motor) removing the need for complex physical (L-R) matrix
- Resistive & Inductive load modeling
- Motor feedback emulation
- V/Hz control mode
- More complete testing than HIL or passive load emulation
- Realistic power factor modeling
- Back EMF modeling
- Inertia torque modeling
- Wide variety of communication protocols available

# BENEFITS



## OPTIMIZED POWER FACTOR

Maximizes testing efficiency and accuracy with an optimized power factor.



## REGENERATIVE POWER CAPABILITIES

Conserves energy and reduces operational costs with a sustainable, regenerative power model.



## BALANCED PERFORMANCE -TO-PRICE RATIO

Offers high end Active AC Load performance at an accessible price, providing value for a wide variety of inverter testing applications.

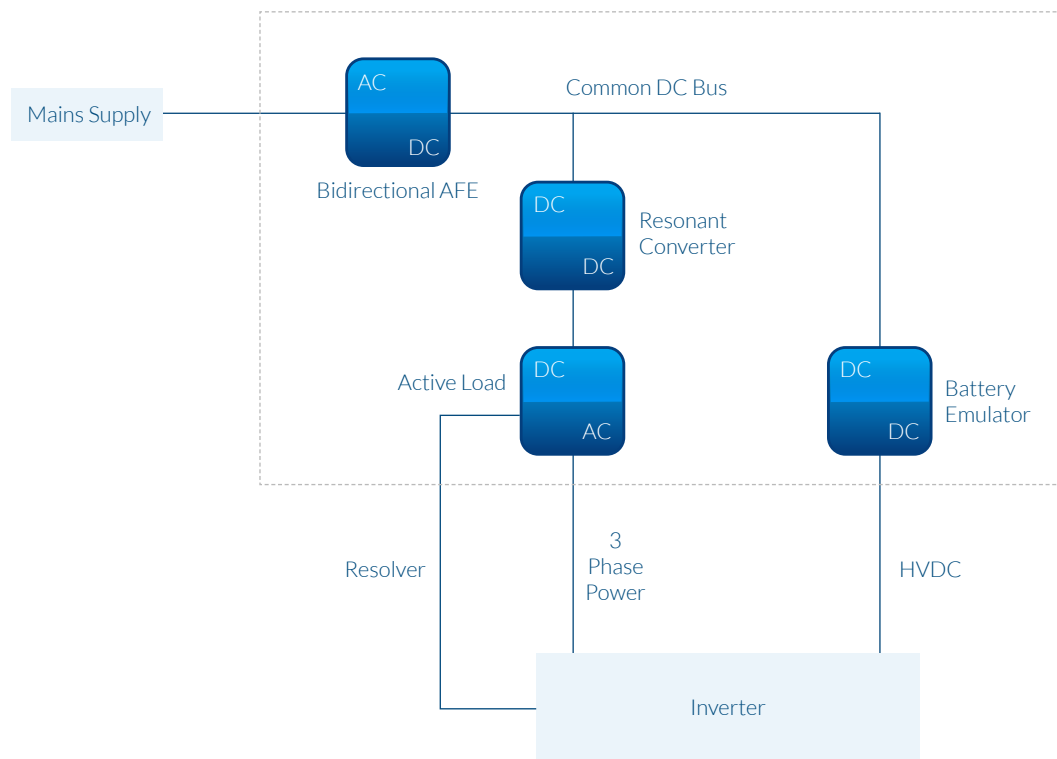


## ENHANCED SYSTEM RELIABILITY

Ensures dependable and consistent testing outcomes with a robust design tailored for rigorous, long-term use.

# ACTIVE AC LOAD FOR INVERTER TESTING - TST800

The UNICO Active AC Load epitomizes the fusion of precision and innovation, essential for the development and validation of electric drivetrains. At the core of this system lies the SiC INVERTER, ensuring both performance and efficient functionality. This dedicated test system is designed to deliver reliable and reproducible results, which are crucial for advancing electric vehicle technology. Comprising both an eMotor emulator and a battery emulator, the UNICO system eliminates the need for actual eMotors and batteries during the initial testing phase. This not only streamlines the testing process but also reduces setup times and costs, allowing for immediate commencement of comprehensive testing procedures.



Unico's Active AC Load allows early testing of traction/drive inverters to prevent prototype eMotor failure, offering precision and flexibility with a fundamental frequency up to 1500Hz and the ability to emulate motors from 2 to 64 poles. Fault injection verification is preprogrammed for efficient error tracking, and the system is user-programmable to match various eMotor designs closely. Additionally, it supports numerous communication protocols, ensuring compatibility with most industry-standard automation systems, and includes comprehensive safety and protection features to safeguard both the equipment and personnel.

## Specifications

Power	30kW to 800kW
Motor voltage	Up to 750VRMS
Number of poles	2 to 64
Back EMF	Standard
Full four-quadrant	Standard
Inertia torque	Standard
Fundamental frequency	Up to 1500Hz
Encoder type	SinCos, Resolver
Resolver	• Poles: 2 to 64 • Offset: $-2\pi$ to $2\pi$ radians • Excitation: 2kHz to 20kHz
Programmable parameters	• Direct inductance $L_d$ • Quadrative inductance $L_q$ • Magnetic flux • Winding resistance
Fault simulation	• 3 Phase open circuit • Phase to phase short circuit • Motor stalling • Demagnetization • Sensor phase shift
Internal data logging	Up to 32kHz
Model calculation	Up to 32kHz
AC Input	400-480VAC, 3Ph, 50/60Hz (other voltages available on request)
Ambient	Up to 40°C, max 1000m above sea level, 95%RH non-condensing
Enclosure	NEMA 1 (other options available upon request)
Cooling	Air cooled, Open loop liquid cooled, closed loop liquid cooling
Cabinet Paint	RAL 7035 Rough Semi-gloss Poly Powder finish
Certification Compliance	UL (other certification available)
Control	Local and remote
Built in remote interface	Analog as well as RS-422, RS-485, two ports (other interface and protocol, see options below)
Safety and control interlocks	Hardwired, opto-isolated, software configurable
Battery Emulator Specification	See Battery Emulator Brochure for available voltage, current and power ratings

## Options

Isolation transformer	Various sizes as required
Insulation monitoring	Available
Additional analog and Cabinet paint finish	Technical discussion required
Cabinet paint finish	Customer specific
Protection class	NEMA 12
External communication interface	• CAN open • CC-Link • Ethernet • Profibus DPV1 • EtherCat (sync) • Ethernet IP



Specifications are subject to change without notice

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