



Electric Propulsion Controls and Accessories

## American Traction Systems Locomotive Propulsion Systems and Products

### ATS Rail

ATS designs and manufactures high efficiency locomotive propulsion systems and accessories for new or remanufactured locomotives using AC or DC traction motors, with hundreds of locomotive propulsion systems delivered since 2008.

### ATS Manufactured Components

#### Propulsion Modules

- 1,400A Continuous Output Current (DC Motors)
- 500A Continuous Output Current (AC Motors)
- "Fast Field" Reversing Field Controllers
- Automatic Anti-Wheel Slip Control
- Motor Over Load Protection
- Wheel Diameter Monitoring and Calibration

#### Induction Generator Module

- Output 750VDC at any Engine Speed
- 500A Continuous Output Current
- Bi-directional for Engine Starting

#### Dynamic Brake Module

- 1,500A Brake Current

#### Auxiliary Inverters

- Radiator Fans
- Cooling Pumps
- Air Compressors
- Traction Motor Blowers

#### Battery Chargers

- 400 and 800kW Stationary Wayside Chargers
- 24VDC @ 300A output
- 74VDC @ 75A output

#### Generator Excitation Controller

- <150A at full Voltage (Main Generator)
- 80VAC at idle for Companion Alternator

#### Safety Features

- SIL2 (Safety Integrity Level) Certification Available
- EN45545 Flammability Certification Available



#### Complete Traction Lockers

- Turnkey AC or DC Traction Lockers
- Auxiliary Inverters
- Battery Chargers
- Dynamic Brake Controllers
- Generator Excitation Controllers
- Axle Generators



#### Propulsion Rack Assemblies

- Fully built and tested
- Ready to be wired into the locomotive
- Assemblies include:
  - Frame
  - Cooling Hoses
  - Cooling Manifolds
  - Back-plane Assembly
  - Miscellaneous Hardware

Specifications					
Description Part #	Purpose	Rated Current**		Voltage Range**	
		Out	In	Out	
DC/DC	Armature Controller Series Field A300641	For switching/shunting locomotives	1000A	600-750V	0 - Input
	Armature Controller Separate Field A300791	For freight locomotives	1000A	600-750V	0 - Input
	Field Controller A300677	For DC motor control	1000A	600-750V	0 - Input
	Bi-Directional Field Controller A310106	For bi-directional DC motor control	750A	450-1150V	0 - Input
	Brake Chopper A300635	For power delivery control to dynamic brake resistors	1000A	600-750V	0 - Input
	Stackable Brake Chopper A300826	For power delivery control to limit bus voltage to 800V	1000A	600-750V	0 - Input
	Dynamic Brake Chopper Module A520002	For AC locomotives	1400A	600-750V	0 - Input
	Low Voltage Power Supply A520016	38V DC power supply	173A @ 38V	450-750V	38V
DC/AC	Dual Inverter A300453	3phase AC load control for accessories	250A x2	500-900V	480V
	Dual Inverter A300693	For electric propulsion system	250A x2	700-750V	440-480V (x2)
	Traction Inverter A300640	For AC traction motor control and/or as a dynamic brake	500A	500-800V	0-480V
	Traction Inverter A520001	For AC locomotives	500A	500-800V	0-480V
	Mini-VFD A300503-1	For blowers, compressors, evaporators, and air handlers	4A	525-900V	0-525V
	Light Rail VFD A510008	For induction motors operating air compressors	13A	500-800V	0- Input x .7
	Dual Supply/ Battery Charger A300845	Battery Charger for hybrid/battery locomotives	250A x2	700-750V	440 - 480V (x2)
AC/DC	Dual Buck/ Boost Chopper A300691	Battery Charger for hybrid/ battery locomotives	385A	360-600V	360-700V
	Rectifier Module A300660	For genset locomotives with soft start	1500A	380-525V	0 - Input x 1.25
	Rectifier Module A300631	For genset locomotives with soft start	1000A	350 - 525V	0 - input x 1.25
AC/AC	Diode Rectifier A300478-A	For conventional locomotives	500A	140-440V	180-560V
	Auxiliary Inverter A300479-A	For 3phase AC motors up to 60HP for accessories.	150A	55-265V	0 - input

\*\*Contact sales rep for additional voltages and currents.

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### Rail

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Systems are running on the Railservice LEAF switching locomotives, the Brookville Co-Gen locomotives, as well as on several in Africa. We installed the first battery system on a locomotive for Norfolk Southern, and new battery systems running on switcher locomotives at steel plants and US military bases. We have supplied Loram with traction systems for MOW locomotives in Germany, United Kingdom, India, Australia, and the U.S.

### Transit

American Traction Systems has designed numerous components for streetcars and trolley buses, from propulsion systems used on the New Orleans Canal Streetcars and the recent El Paso streetcar renovations, to the power inverter/air compressor VFD unit designed for Niagara Frontier Transportation Authority. Our latest product is the low voltage power supply self powered from a HVDC input.

### Hybrid

ATS offers several electric vehicle inverters including a DC to AC propulsion system for battery powered and series hybrid vehicles, a high power inverter for propulsion or generator applications, and a high power inverter system that includes an AC induction motor controller, an auxiliary inverter and a built in dump chopper for regen protection. These units have been installed on airline FBO equipment, military vehicles, and electric trucks. Our propulsion system has been on the Ohio State Buckeye Bullet electric vehicles setting numerous land speed records.

### Custom

ATS has a modern, full service panel shop. We can provide the design, assembly, and testing of custom electrical control panels. We have experience with Programmable Logic Controllers (PLCs) with integrated touch screen, operator stations, VFD controls, DC drives, switchgear and medium voltage cabinets.

We have five independent test bays powered from a dedicated 480V AC 1000A supply providing regulated AC and DC supplies for full load testing of all panels.

## About American Traction Systems



Since 2008 American Traction Systems has been providing power solutions to a variety of industries. We expanded the technology developed for underground mining vehicles by our sister company, Saminco International (established in 1992), and applied it to above ground applications where we have continued to develop our product line to new industries and services.

We specialize in the design and manufacture of high power AC, DC, and Permanent Magnet Motor Control products primarily for traction and propulsion applications. Our solid state electric vehicle traction controllers are powered by batteries, diesel-electric, fuel cells or power centers for electric vehicles of all types. While standard manufacturing is our mainstay, constant research and development keeps ATS at the forefront. Our newest product is a Wayside Battery Charger for locomotives and hybrid vehicles.

We are based in Fort Myers, FL with on-premise departments including board design, software and hardware engineering design, CAD, manufacturing, panel wiring, testing and quality control.

Our customers span the globe from North and South America, to Europe, Africa, Asia, and Australia. We have factory trained technicians in North America, Europe, South Africa and Asia.



Propulsion Rack Assembly



Complete Traction Lockers



Installation on locomotive



Mini-VFD for Traction Motor Blowers



Low Voltage DC/DC Power Supply



Power Inverter for Air Compressors



Electric Vehicle Inverter



High Power Inverter



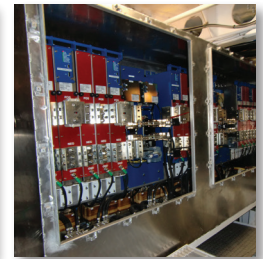
High Power Inverter with Auxiliary Inverter and Regen Protection



Stationary custom panel work



AC and DC Locomotive Traction Lockers



On-site panel work on marine vessel