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MILITARY BROCHURE

POWER SUPPLY & EMI FILTER SOLUTIONS

*Standard and customizable power solutions for
the most critical applications*

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ASTRODYNE TDI | 908.850.5088 | WWW.ASTRODYNETDI.COM

UNIQUELY QUALIFIED

Military applications present challenges to power conversion products by the very nature of the harsh environment they must operate in. They are first required to demonstrate reliability during all test phases, but more importantly in the battlefield, performing in the demanding application itself- where it counts. Reliability is the key driver in mission critical applications and for over 50 years, AstrodyneTDI has demonstrated a solid history and reputation in the military marketplace, providing solutions for many of today's sophisticated weapon, command and control systems. These power systems are designed to meet stringent MIL STD specifications and endure the harsh environmental and electrical requirements of today's battlefields. Today, Astrodyne TDI COTS can assist in low and high power conversion of AC to DC, DC to AC, DC to DC as well as all EMI filter requirements in between.



BENEFITS OF COTS/MODIFIED COTS

Astrodyne TDI COTS power products were engineered specifically for industrial, automotive, and military applications to simplify the design effort internally, but also for contractors and designers who need to qualify to MIL specifications to suit specific ruggedness and environmental requirements.

The use of COTS results in an overall:

- ▶ Cost Reduction
- ▶ Development Time Reduction
- ▶ Improve Time to Market
- ▶ Minimize Lead Times and Risks

Count on **Astrodyne TDI** for all of your military COTS and modified COTS requirements

POWER SOLUTIONS

AC/DC and DC/DC COTS Brick Power Supply Modules

Rated from 180 to 1kW, Astrodyne TDI's AC/DC PFC brick products support AC input frequencies from 47 to 880 Hz. Our DC/DC converters, rated from 50-700W, support traditional 28, 48 and 300 VDC inputs.

AC/DC & DC/DC UPS and Bulk Power Supplies

Standard AC/DC rectifier modules range from **1kW** to **16kW**, scalable up to 500kW. Astrodyne TDI can offer engineered system solutions, like rack assemblies with complete busing, plumbing and power distribution, when required.

EMI, EMC and RF Filter Solutions

The standard line of off-the-shelf military EMI filters provide performance for MIL-STD-461 and RTCA/DO -160, and can be fully customized or configured to meet specific requirements. MIL-COTS EMI filters are designed for ambient temperatures of 100°C (212°F) to -55°C (-131°F)

MANUFACTURING IN USA

Astrodyne TDI offers US manufacturing along with the benefits of global sourcing, when acceptable. Our manufacturing facilities are fully certified to ISO9001: 2008 and ISO 14001:2004 RoHS.

HIGH-QUALITY SOLUTIONS WITH SAFETY CERTIFICATIONS

Highly Accelerated Stress Screening (HASS)

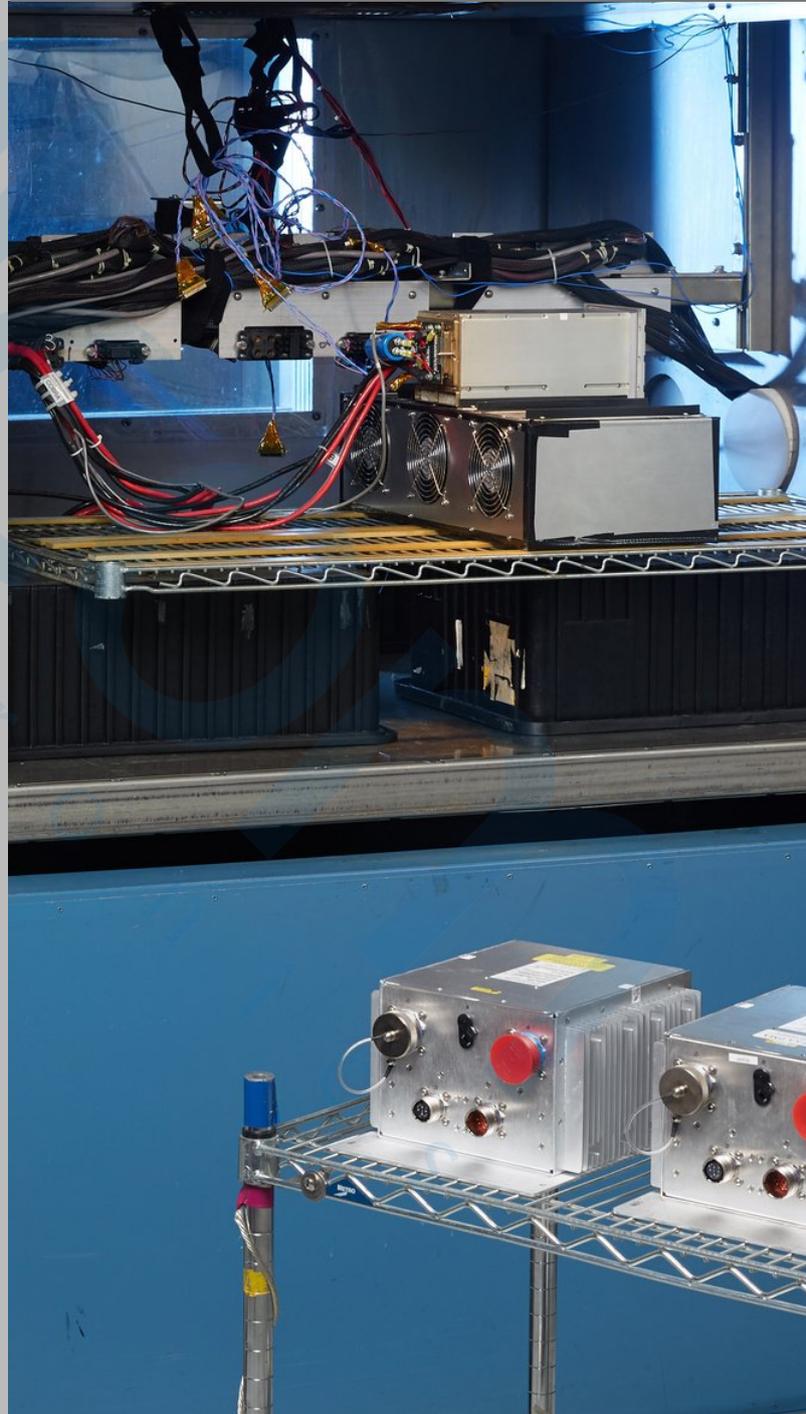
Highly Accelerated Stress Screening (HASS) is performed on 100% of all Astrodyne TDI high power, production-ready COTS products (each and every product produced). More stressful than Mil-Spec Environmental Stress Screening (ESS), HASS subjects units under test to a rigid temperature, shock vibration and electrical parameters profile.

Highly Accelerated Life Testing (HALT)

Highly Accelerated Life Testing (HALT) is a pre-production process performed to uncover limitations in product design, component selection, and manufacturing that would not otherwise be found through conventional qualification methods. The process subjects the unit to progressively higher stress levels, incorporating thermal dwells, rapid temperature transitions, vibration, and a combination of temperature and vibration to precipitate inherent defects. Astrodyne TDI performs HALT on each and every high-power design.

- ▶ *200,000 Sq. Ft.*
- ▶ *6 SMT Lines*
- ▶ *PTH Assembly & Wave Solder*
- ▶ *PCB In-Circuit Test and Sub-Module Test*
- ▶ *ISO 9001:2000, 14001:2004 RoHS*
- ▶ *Common manufacturing and test equipment and process in the USA*
- ▶ *Easy transition from pilot to volume production*
- ▶ *Redundant manufacturing capability*

100% HASS TESTED



PROGRAMMABLE. RUGGEDIZED. COMPACT.

VERSATILE AC-DC POWER

FLEXIBILITY THAT SERVES DEMANDING APPLICATIONS

Flex Series

Air Cooled Supplies: Single-Phase



Astrodyne TDI's 3.8kW **MercuryFlex** is the perfect rectifier solution for applications that require programmability from a ruggedized design. MercuryFlex provides a fully adjustable, wide-range DC Output **0-450V**.

With a high-speed CAN-Bus interface providing full control of output voltage, current, and power, along with real-time read back, the Mercury Flex provides optimal integrations and optimization opportunities for complex systems. For higher power applications, Mercury-Flex rectifiers can be easily connected into parallel current sharing groups with the aid of shelf assemblies, enabling designs up to 500kW.

The MercuryFlex product line supports a wide range of globally used AC inputs (1Phase and 3Phase) to provide ultimate flexibility from a single product platform.

Liquid Cooled Series

Liquid Cooled Supplies: Universal Three-Phase



Liquid-cooled power supplies are the perfect solution for applications with increasing power demand and/or the need to protect components from environmental contaminants.

LiquaBlade and LiquaCore are the most recent liquid-cooled power supplies engineered by Astrodyne TDI.

These rectifiers combine advanced DC power processing, the latest silicon carbide semiconductors, patented liquid-cooling, and sophisticated microprocessor controls, resulting in up to 16 kW of power in a single 1U (1.75" height) rack style package or 5.5kW of power in an embedded package. The wide AC input range of 380-480V 50/60Hz permits universal three-phase usage without the need for an external step-down transformer. LiquaBlade™ is fully programmable from 0-500V.

AN APPROVED MILITARY SUPPLIER

RACK SYSTEMS

Astrodyne TDI COTS solutions support:

- ▶ *Military standard certifications include 810G, 461/ 464 , 1399/330B, etc.*
- ▶ *Flexible outputs from 0 to 1350V for multiple configurations*
- ▶ *Constant voltage, constant current, constant power control methods*
- ▶ *Flexible system controls include industry standard analog, CANbus, and Ethernet*
- ▶ *Power Distribution Capabilities*
- ▶ *Power Protection with circuit breakers, fuses and alarms*
- ▶ *Multiple Input Configurations (1-Phase or 3-Phase)*
- ▶ *N+1 Redundancy*



MILSTD AC-DC Power Solutions

Programmable & Scalable LV and HV Input VERSIONS



Astrodyne TDI's M3P Power System Series provides Military Grade DC power for air, land, and sea-based defense applications. Housed in a compact 19-inch rack-mountable chassis, MercuryFlex sub-modules provide a fully adjustable, wide-range DC output, while operating from universal AC input. Assemblies can be connected in parallel for increased power, servicing higher power needs. This modular approach with flexible outputs provides ultimate flexibility and ease of maintenance.

UPS & Battery Back-Up

Back-Up Power



Astrodyne TDI's uninterruptible power solutions provide high-reliability solutions in critical locations such as military systems. A UPS system provides backup power while facility emergency power ramps up. AstrodyneTDI's backup systems provide a cost-effective solution to assure the continued operation of mission-critical equipment.



EMI/EMC SOLUTIONS

Astrodyne TDI has over two decades of experience in design, development and manufacturing of a complete range of AC and DC EMI/ RFI/ EMC filters for military and aerospace applications.

RPM6XXX Series

- ✓ MIL/COTS DC EMI Power Line Filter
- ✓ Current Rating: 5-60 Amps
- ✓ Dual Stage



RMP7XXX Series

- ✓ MIL/COTS AC EMI Power Line Filter
- ✓ Current Rating: 5-50 Amps
- ✓ Dual Stage
- ✓ Single-Phase



RPM8XXX Series

- ✓ MIL/COTS AC EMI Power Line Filter
- ✓ Current Rating: 5-150 Amps
- ✓ Dual Stage
- ✓ Three-Phase Delta & WYE



RPM9000 Series

- ✓ MIL/COTS AC EMI Power Line Filter
- ✓ Current Rating: 5-20 Amps
- ✓ IEC Inlet
- ✓ Single-Phase



RPT5000 Series

- ✓ TEMPEST/COTS DC EMI Power Line Filter
- ✓ Current Rating: 2-35 Amps
- ✓ Multi-Stage



RPT55XX Series | 3-20A

- ✓ TEMPEST/COTS AC EMI Power Line Filter
- ✓ Current Rating: 5-35 Amps
- ✓ Single-Phase



RPTC Series

- ✓ 2002-10, 2011-30, 2003-60, 2011-100
- ✓ TEMPEST/COTS AC EMI Power Line Filter
- ✓ Current Rating: 10-100 Amps
- ✓ Single-Phase



RPTC Series

- ✓ 2012-60, 2004-100, 2001-225
- ✓ TEMPEST/COTS AC EMI Power Line Filter
- ✓ Current Rating: 60-225 Amps
- ✓ Three-Phase WYE
- ✓



RPMC5014 Series

- ✓ MIL/COTS EMI Power Line Filter
- ✓ Current Rating: 63 Amps
- ✓ Three-Phase Delta



F9XXX Series

- ✓ Compact AC Extended Temperature Rugged COTS
- ✓ Current Rating: 5-35 Amps
- ✓ Single-Phase Filters
- ✓ Single and Dual Stage



F1928X Series

- ✓ MIL/COTS AC and DC EMI Power Line Filters
- ✓ Current Rating: 5-30 Amps
- ✓ Single-Phase & Three-Phase



F19374 Series

- ✓ High Performance AC Single Stage Power Line Filter
- ✓ Current Rating: 10 Amps
- ✓ Single Stage





ENCAPSULATED BRICK POWER MODULES

Outstanding electrical performance, coupled with mechanical packaging features such as insulated metal substrates, planar magnetics, and thermally conductive potting make RO the bricks of choice for high-performance, high power density systems.

PFC 375 Series

375W 1/2 Brick

- ✓ 47Hz-800Hz Input
- ✓ 375VDC Output
- ✓ 100C baseplate operation



SMV Series of Board Mount

500W AC/DC with PFC Full Brick

- ✓ 47Hz-440Hz Input
- ✓ 12, 28, 48 VDC Outputs
- ✓ 100C baseplate operation



PFC 600 Series

600W 3/4 Brick

- ✓ 47Hz-65Hz input
- ✓ 375VDC Output
- ✓ 100C baseplate operation



nV300 Series

120W DC/DC 1/2 Brick

- ✓ 220VDC-400VDC Input
- ✓ 3, 5, 12, 15, 24 VDC Outputs
- ✓ 100C baseplate operation



PFC 650 Series

650W 3/4 Brick

- ✓ 47Hz-440Hz input
- ✓ 375VDC Output
- ✓ 100C baseplate operation



uV300-164 Series

300W DC/DC 3/4 Brick

- ✓ 220VDC-400VDC Input
- ✓ 5, 12, 15, 24, 28, 48 VDC Outputs
- ✓ 100C baseplate operation



HI-RELIABILITY SOLUTIONS

- ▶ Insulated Metal Substrate for Optimized Thermal Conduction
- ▶ Fixed Frequency Design
- ▶ Control shutdown, trim, Power Good, and Sense lines features
- ▶ Experienced in Harsh Environmental and EMC applications
- ▶ Hi-Density Packages for reduced Size and Weight



POWER. EVERYTHING DEPENDS ON IT.

When the need for power conversion is at its most demanding...its most critical... for over 50 years, the solution has been Astrodyne TDI. Today, our unmatched experience across multiple industries enables us to deliver a wide range of power-based technology solutions for some of the most well-known companies in the world. From off the shelf standard power supplies and electronic loads to complete customized power systems, the solution is always as close as Astrodyne TDI.

Developing Power Technologies & Products that People Depend Upon, to Enhance, Protect, and Save Lives.

Astrodyne TDI
Now you have power.

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