HDL Research Lab Inc
Fact Sheet

Custom Military Power Supplies

Design, Engineer, and Manufacture of Power Supplies for Military & Aerospace Applications

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Introduction	We design and manufacture power converters, power conditioners and power distribution units (PDUs) primarily for the military and aerospace sectors. Capabilities range from 1 Vdc to 25 KVdc and 100 microwatts to 30 KW at -55°C to +100°C. While the typical application involves simply the organization of proven circuitry into a given configuration, the custom option affords system designers the freedom to forge the future out and beyond conventional limits. Whether for R&D, competitive second sourcing, or source replacement, HDLs flexibility, innovation and competence have received recognition throughout the industry.
History & Company Goals & Philosophy of Small Business	Founded in 1973 to service the R&D needs of the oil industry, HDL matured into a leading supplier of specialized power technology for down-hole exploration use to temperatures of +260°C. Diversified in 1984 with the transition to the defense industry, the firm focused on the design & manufacture custom power supplies. Broadening its expertise to include world-class customer service and support, HDL was awarded the 1987 Small Business Subcontractor of the Year award for Region VI, and earned preferred supplier business from market leaders such as Boeing McDonnell Douglas, BAE Systems, Lockheed Martin, Raytheon, Rockwell Intl, and Orbital ATK. Awards include 2007 ATK Top-50 Supplier; 2008 Raytheon NCS-Dal 3 Star Excellence; 2009 Lockheed Martin MFC-Orlando Outstanding Small Bus. Provider, 2010 Raytheon Enterprise PSL, 2010 Raytheon Missile 4 Star Excellence, 2011 Raytheon SAS 4 Star Excellence, 2012 Raytheon SAS 3 Star Excellence, 2014 Raytheon IDS 4 Star Excellence and 2015 Raytheon IDS 3 Star Operational Excellence Supplier Award. HDL practices basic business philosophies, stressing service, rigorous quality and technical excellence. The firm maintains a loyal client base and encourages early involvement. HDLs ongoing commitment to the development and implementation of innovative business ideas increases the value delivered to our customers on a regular and recurring basis.
Engineering Dept Technical Expertise	Experience & innovation in design has proven to be an effective foundation for quality, applying theory and practice to achieve maximum functionality & versatility. Experienced, expert design teams employ CAE tools such as P-Spice™ and Algor™ to model designs, interactive tools such as a gain-phase margin system to enhance designs, and CAD tools to prepare the engineering drawings and associated lists. Engineering continues to develop leading-edge designs, leveraging from previous experience, to assure the best blend of value, reliability and risk. HDL supports a wide variety of engineering data items from design analyses to technical publications.
Manufacturing Concept, Capability, Organization, Surge	HDL demonstrates the use of effective & systematic communication, astute planning, and a primary dedication to deliver end-item quality per the schedule in its application of SWARM manufacturing and LEAN techniques. HDLs cellular cross-functional production teams manage pilot production through spares efforts for through hole, mixed and surface mount technologies. Hand, Displacement, Wave and IR Reflow soldering techniques are used. Production flow is circular, allowing 100% in-process inspection at key manufacturing stages. The High Reliability Soldering Program requires all personnel to be thoroughly trained and educated in proper quality electronics technology production practices per ANSI/J-STD-001 Class 3 and IPC-A-610 Class 3. HDL maintains IPC7711/7721 Certification for rework/repair requirements. An internal magnetics cell assures custom production magnetics per MIL-T-27 are available. Organic automation is achieved using an 11-Zone Cyclonic IR Oven, screen printer, Automated Optical Inspection System, and three Dynapert SMD pick-&-place machines that provide ready-to-run process controlled high-rate production. Surge requirements can be easily accommodated using SWARM manufacturing and given an operating density saturation of only 55% of resources. HDLs CNC Machine Shop Cell supports growth anticipated for future designs and manufacturing requirements.
Testing Program & Capabilities	A fully-equipped environmental test facility complete with a conducted EMI/EMC lab for engineering development, qualification test & production test supports the need to offer clients test program tailoring. Internal ESS testing assures the highest deployed end-item reliability with the least schedule risk. Acceptance testing is supported by three high speed NH Research 5600 series, 6-station Automated Power Supply test systems with programmable AC and DC sources affording efficient throughput and SPC process/circuit monitoring. In Circuit Test by Teradyne TS124 Test Station. HDL also has an X-Tek XTV-130 Real-time x-ray system for root cause analysis and LCC inspection. Test Types: Acceleration, Altitude, EMI/EMC, Humidity, Immersion, Nuclear Survivability, Rain, Salt Fog, Sand/Dust, Solar Radiation, Shock-Transport, Shock-High Impact, Temperature/Altitude, Temperature-High, Temperature-Low, Temperature/Humidity, Temperature-Shock, Vibration-Sinusoidal, Vibration-Random, and Environmental Stress Screening.
Tin Whisker Risks	HDL is exempt from RoHS requirements. HDL employs a GEIA compliant risk management program which includes assessment using a HiSpex Maxxi XRF machine for receiving inspection and tin whisker risk mitigations.
Obsolescence Program	HDL addresses part obsolescence issues in a proactive manner to mitigate obsolescence risks for new and on-going projects, avoid schedule impacts, and improve the accuracy of material and parts shortage forecasts using a three-tiered, multi-disciplined approach consistent with the DMSMS Acquisition Guidelines.
Quality Assurance	HDL is AS9100 and ISO 9001 Certified. A comprehensive quality assurance program incorporating the quality element into all aspects of HDLs business creates an environment of total quality awareness throughout the company and its suppliers. Online intranet tools, Statistical Process Control, Electrostatic Discharge Control & Total Quality Management combine in a core system meeting the most demanding clients. Assembled printed wiring boards pass through a large frame Mirtec AOI (Automatic Optical Inspection) System at 10x power to assure tireless consistency for component type, value, polarity, placement, and workmanship defects.
Previous Service	SPY-1 AEGIS, Patriot, SM-6, JSF F-35, HISAR, B-1B, Tomahawk AGR4, JAGM, Adv-AEHF, PHALANX, RAM, ATRU, LCS, SeaRAM, HARM, AARGM, HCSM, F-16 PDU, MTS CSP, EPLRS, E2 TARA, LAV-AT, E2D Hawkeye, FCS NLOS, MREO & LREO, SAS-ISP, DDG-UPS, NMT-ACM, CIRCM, AN/TPQ-36/37 Sentinel/Firefinder, AGMS-PCU, JATAS, MILSTAR, SCAMP, FOT, AN/ALQ-22, ROTHR, BCTM GCV, SMART-T, Skyguard, EA-6B UEU, Big Safari, AN/WSC-6, JTCTS, GBU15/AGM-130, C-17 CAWS, Harpoon MK105 & MK 78, MK-84, MK 86, MK 125, Sparrow, Trailblazer, IEWCS, AN/TPS-70/75, AN/TRC-170, UAV, AN/ALQ-156, MDR/HDR, Super Cobra, Rail Garrison, Pacerlink II, Digital MAD, B-52, F-14, F-15, F-18, AN/WQN-1, Space Station Ultrasound, Stellar/Horizon Sat.
Plant Location	Brenham, Texas, 74 miles NW of Houston, 90 miles SE of Austin, Facility size: 88,000 Sq. Ft., One Location. Rev 01-01-2017