



Portfolio of Services

- I. Electronic/Electrical Design & Development
- II. Mechanical Design & Development
- III. Reliability Predictions & Testing
- IV. Molding & Prototyping
- V. Assembly Services
- VI. Documentation & Drafting Services
- VII. Systems Integration
- VIII. Quality Programs & Certifications

Dedicated To The Highest Quality Standards
Special Electronics & Designs Inc. is
ISO 9001:2000 Registered



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Design for Manufacture

Special Electronics & Designs Inc. is well positioned to take your idea from concept to finished product quickly and efficiently.

- Our design/development specialists have experience with a wide range of product including analog and digital circuits to circuitry for the integration of off the shelf assemblies.
- Your product will be developed with a clear understanding of all design and manufacturing requirements, from conception to project completion.

Electronic Design & Development

- Analog - Voice & DC gain amplifiers
- Digital & Discrete Circuit Assemblies
- Mixed Logic Circuits
- Surface & Through Hole Components
- Microprocessor Embedded Applications
- Power Supplies
- Transducer Design for underwater and high temperature and high noise applications
- Design or special purpose cables and wires



Mechanical Design & Development

With our solid modelling capabilities we can:

- Take your concept, design a part or assembly, then proof it, utilizing Computer Aided Design.
- Use a virtual prototype to perform a kinetic and mass analysis to reveal any engineering faults plus any ways of reducing material costs.
- Render the design for graphics purposes - all before anything is molded, machined or bent.
- Export the design in various formats for rapid prototyping and tooling. In addition, drawings can be generated up to "D" size.

SED's engineering team's capabilities also include a variety of electromechanical interface applications. The 3D software we utilize includes SolidWorks and AutoCAD. In 2D we use AutoCAD and GenericCADD.

See these other SED Inc. Services:

- Design for Manufacture
- Reliability Calculations & Test Services
- Molding & Prototyping Service
- Mechanical Design & Development
- Complete Assembly
- Complete Documentation & Drafting Service
- Complete Supply & Turnkey Services



Support Services

Reliability Calculations

The SED design department will provide reliability analysis of electronic circuits and systems. Our analysis will allow you, or SED, to integrate reliability considerations into the design process to create quality, cost effective products.

Our process is fully automated to provide you with an alternative to the tedious, time consuming and error prone manual methods. Analysis is done using the MIL-HDBK-217F; Notice 2 Prediction Procedure. Call us with your needs.

Testing

Our entire facility uses test equipment Calibrated to National Standards in its proof testing. These same services and the test equipment are available for benchmarking your product or for after market testing.

Testing Services Included

What we can do:

- Distortion Analysis
- Frequency Counting
- Signal & Waveform Generation
- Digital Voltage/Current Measurements
- AC Power Sourcing 110V/220 VAC
- Wave Form Storage
- Digital Storage
- Environmental Chamber Testing 95% RH
- Temperature Testing
- Sound Level Measurements
- A Complete Line of Mechanical Measuring devices
- Hardness Testing of Rubber Components



Molding & Prototyping Services

SED can develop your idea *for you*, from conception to final product.

You may currently have a component that is doing the job, but you want to make it lighter, increase it's reliability, and reduce the cost. We have the capability to create models, design tooling and to complete smaller production runs of components in quantities of 100 to 100,000 pieces.

With our design staff's experience in many fields, SED can advise you on product enhancements, methods to improve performance or reduce cost.

We offer specialized tooling design for low run parts to keep your tooling costs down. This is advantageous when considering limited volume production of prototypes for field trials or simply to anticipate limited production quantities.

Equipment

Molding Machine: •Battenfeld 60/100 ton 6 oz.
 •Battenfeld 300 ton CNC.

Dryer: •Desiccant Bed Type
 •To -40°C dew point

Materials

Plastics in stock: •ABS
 •Polycarbonate
 •Nylon - Super Tuff

Thermoplastics in stock: •Alcryn

Polyurethanes: •Casting urethanes for large section rubber
 assemblies, boots



Complete Assembly Services

Assembly may be initiated using your free issued materials or with materials purchased to your specifications.

Materials are fully controlled from receipt, through all the production/assembly steps, inspection and testing, to the final packaging and shipment of the product.

Services Include:

- Product design and development (mechanical & assembly)
- Prototyping to production quantities
- Contract Manufacturing & Assembly
- Skilled hand assembly for critical applications
- Through-hole & mixed technology PC Board assembly
- Computer aided PCB layout
- Mold design and construction
- Injection molding of up to 6 oz. of a variety of resins
- Procurement
- Sheet goods cutting with clicker presses
- Machining including drilling, punching, milling, lathing
- Modification of materials/components
- Ultrasonic welding
- Cable & loom assembly
- Mechanical & Electronic product assembly
- In-house functional testing
- ISO 9001/2000 Quality Program

Avoid the hidden costs of manufacturing - contact us today!

Assembly Services



Complete Documentation Services

Cost Effectiveness

Effective communication has become a major strategic initiative for many companies. Improving the way you communicate, through well structured and timely delivery of information, can have a major impact on efficiency.

Partnerships

- We work in partnership with you to understand your business needs and how your target audience uses documentation.
- Our team of experts can create paper or electronic documentation.
- Advise you on the most appropriate method of delivery for your organization.

Writing Services

Using a set of guidelines and principles, SED will, review your base data and your target audience. The information is then organized and presented in a clear and concise way such that information retrieval is much more rapid than with more traditional methods.

Consulting Services

Our knowledgeable staff, skilled in structured document creation offer services from complete project management to the writing of single publications and providing technical and library structure support. We believe our solutions are the best and the simplest to apply.

Complete Drafting Services

We have developed a complete engineering support department. We are ready to provide our services to those companies or individuals that require them; as a stand alone service or as a part of more extensive projects:

We are well equipped to handle:

- 3D & 2D Drawings
- Assembly drawings
- Wiring Harnesses/Drawings
- Industrial Control
- Electronic Fabrication
- Colour Ink

Prints and Mylars may be produce with:

- Black Ink
 - Inkjet plots up to "D" size drawings
 - Laser printer for "A" size drawings



Complete Systems Integration

Let SED Inc. put it all together for you! Come to us for all your design, supply and commissioning of complete integrated systems. Our experience with multi-million dollar contracts both in the domestic and international markets qualifies us as a leader in the supply of your specialized requirements. With SED Inc's design engineering background, cost effective solutions can be realized through procurement or new product designs.

Our Development & Support Services Include:

- New Product Design
- Existing Product Re-engineering
- System Design & Integration
- Circuit Design
- PCB Layout
- Software Design & Device Programming
- Mechanical Design
- Product Packaging

We manufacture product, assemble & test:

- Printed Circuit Boards
- Cable Harnesses
- Mechanical Assemblies
- Enclosures, steel, plastic, etc.

We provide support services as required:

- Installation
- Technical Documentation
- Manuals
- Commissioning
- Repair and Maintenance

Consider SED's varied Experience:

- Suit Communications Systems for use in nuclear facilities for conferencing up to 200 headsets
- Maintenance Communications Systems for use in maintenance of industrial facilities for conferencing up to 20 headsets
- Rescue systems employing both video and intrinsically safe audio links
- Plant wide, large scale, high power paging and alarm systems
- PABX Telephone systems for use in plants
- Telephone booths with high noise attenuation
- Strobe light assemblies for alarm status and telephone extension ringers
- Receptacle Boxes
- Master synchronized clock/control systems
- Combined Air/Communications supply components (hoses, headers, interface components)



Complete Quality Management System

Quality is an integral part of every product manufactured or integrated into larger systems. Let SED use their experience in Quality Management to supply conforming to your exacting standards. Our 30 years of excellence in the Engineering and Manufacturing of superior electronic systems is directly a result of total quality improvement and effective management of resources.

Many of SED's products are used by Rescue and Public Safety Professionals and Industry, who rely upon quality equipment for safety and to save lives.

SED has met the stringent requirements of its nuclear customers to meet programs in accordance to ISO 9001/2000. These programs also include design elements that are required to achieve ISO compliance for their specific products. Additionally, Intrinsic Safety Standards are met for product employed in potentially explosive environments. SED has been manufacturing to the nuclear power station quality requirements for over 25 years.

Quality Standards and Certification

SED's experience in standards and certification can aid you in the development of your system, product or prototype. Tell us your specific requirements and let us help you with our professional advice or assistance.

Product specific certifications held by SED for its own products or as required by its customers, have included:

CSA C22.2, UL #913 and harmonized European standards for potentially explosive environments per:

Class I Div. I Groups A, B, C, D

Class II Div. I Groups E, F, G

Class III Div. I

Gaseous Mines

EN 50014-1977 + A1- A5 (VDE 0170/0171 part 1/1.87) General Requirements

EN 50020-1977 + A1-A5 (VDE 0170/0171 part 7/4.92) Intrinsic safety "i"

EN 50039-1930 (VDE 0170/0171 part 10/4.82)

Intrinsically safe electrical systems "i"

Industrial Environments;

TSSA registered air supply product under Boiler, Pressure, Vessels and Pressure Piping Code Standard #B51-97.

Hearing Protection: CSA Standard Noise Reduction Rating (NRR)