JOB DESCRIPTION & PERSON SPECIFICATION

Job Title: Senior Hardware Engineer	**Location:** Hunmanby/ Mansfield
Department: Engineering	**Contract:** Full-time, Permanent
Reports To: Hardware Team Manager	**Direct Reports:** N/A

1.0 Job Summary & Role

Deep Sea Electronics (DSE) is a global leader in the design and manufacture of generator controllers, automatic transfer switch controllers, battery chargers and vehicle control systems. With customers in more than 150 countries and a reputation for innovation, quality and reliability, we continue to invest in our people, products and processes. Our products serve the energy control and automation market, supporting power generation in many forms, including generator sets, renewable energy and microgrids, as well as off-highway machinery.

We are looking for an experienced Senior Hardware Engineer to design, develop and support reliable control electronics for generator sets used in critical power applications, and for human-machine interfaces (HMIs) used on off-highway vehicles. The role centres on electronic hardware design for generator set controllers and HMI control panels, covering power switching, sensing, protection and control interfaces, and ensuring designs meet the relevant safety and performance standards. You will work on new product development and support our existing product portfolio.

The ideal candidate will have strong experience in embedded electronics, low- and medium-voltage power systems and HMI control panel design, with hands-on involvement from concept through to volume production. The role sits within our Engineering department, based either at DSE's headquarters in Hunmanby, North Yorkshire, or at our satellite office in Mansfield.

2.0 Key Responsibilities & Main Duties

Hardware Design & Development

- Design and implement hardware for embedded devices and systems from requirements to volume production and commercial deployment
- Support for existing battery charger products
- Create schematics, PCB layouts, and wiring diagrams for Genset control and monitoring systems and HMI control panels.
- Design circuits for voltage, current, frequency sensing, phase detection, and power quality monitoring
- Implement protective circuits for over-current, over-voltage, short-circuit, and fault isolation
- Support integration of microcontrollers, relays, and communication interfaces (e.g., Modbus, CAN, Ethernet)

Compliance

- Ensure designs meet UL, IEC, BS EN, and relevant regional standards for EMC and power
- Perform fault analysis, derating calculations, creepage/clearance analysis, and thermal design
- Collaborate with compliance teams during certification testing and audits

Testing & Validation

- Develop and execute hardware validation plans including functional, environmental, and stress testing
- Perform lab testing with generators, utility sources, and load banks
- Analyse test data, debug hardware issues, and implement design improvements

Manufacturing & Lifecycle Support

- Support prototype builds, design for manufacturability (DFM), and design for test (DFT)
- Work with suppliers and manufacturing teams on component selection and cost optimization
- Provide production support, failure analysis, and field issue resolution

3.0 Internal & External Relationships

- Engineering Management – take work tasks and direction from and report to
- Purchasing department – work closely with buyers designing for dual source component availability and cost
- Test and Approvals department – work closely with the Test and Approvals team to understand the reports and provide solutions
- Technical Support – assist technical support with more involved customer queries
- Technical Authoring support
- Commercial sales team – Support during development phase and requirements gathering
- Customers – Occasional customer interaction may be required in calls, meetings or travelling to visit a customer

4.0 Key Performance Indicators

- Attention to detail, able to work both individually as a part of a team and have the self-discipline required for hardware developing and testing
- High quality hardware development minimising the number iterations
- Ability to work against timescales and deliver the hardware with the expected quality on time
- Strong analytical and troubleshooting skills
- Ability to manage multiple design tasks in parallel
- Clear technical documentation and communication skills
- Comfortable working in high-reliability, safety-critical environments

5.0 Essential/Desirable Factors

Knowledge	
Essential: • CAD design tools • Analogue and digital design • EMC principles	**Desirable:** • Electrical theory
Skills & Attributes	
Essential: • Used to working to high-quality standards • Excellent team player with problem-solving and trouble-shooting capabilities • Ability to translate requirements into a technical product specification • Good communication skills and ability to concisely discuss product development issues within team of engineers from many different specialities • Enthusiastic and optimistic • Adaptable to changing requirement	**Desirable:** • Understanding of embedded software • Familiar with stage gated/agile development approaches such as JIRA • Used to working in a high-paced environment • Used to defining task breakdowns for a give piece of work and providing estimates
Experience	
Essential: • 7+ years of experience in electronics / electrical design • Strong understanding of AC power systems, three-phase power, and generator-utility interfaces • Proficiency in schematic capture and PCB design tools (Altium, OrCAD, CADstar, etc.) • Hands-on experience with oscilloscopes, power analysers, and high-power lab equipment • Experience of analogue hardware design including signal conditioning / processing	**Desirable:** • 10+ years of experience in power electronics or power systems hardware design • Experience in designing test equipment to enable specific testing of unique product features • Working knowledge & understanding of PCB design & layout requirements particularly with respect to EMC • Analogue sensor interfacing & interfaces to monitor external sensors, both analogue & digital • Creating EN safety reports • Knowledge and experience with industrial communication protocols
Qualifications	
Essential: • Bachelor's degree in Electronic / Electrical Engineering or equivalent	**Desirable:** • Master's degree in Electronic / Electrical Engineering or equivalent

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Hardware Team Manager	November 2026