JOB DESCRIPTION & PERSON SPECIFICATION

Job Title: Automatic Transfer Switch (ATS) Hardware Engineer	**Location:** Hunmanby or Mansfield
Department: Engineering	**Contract:** Permanent
Reports To: Hardware Team Manager	**Direct Reports:** N/A

1.0 Job Summary & Role

We are seeking an experienced Hardware Engineer to design, develop, and support reliable power transfer solutions used in critical power applications.

This role focuses on the electrical and electronic hardware design of Automatic Transfer Switch (ATS) systems, including power switching, sensing, protection, and control interfaces, ensuring compliance with safety and performance standards.

The ideal candidate has strong experience in power electronics, low- and medium-voltage power systems, and electromechanical control design, with hands-on involvement from concept through production.

The individual will work within the Engineering department located at DSE headquarters in Hunmanby (North Yorkshire) or in Mansfield (Nottinghamshire). They will perform hardware development activities on new product developments as well as maintaining the current product portfolio.

The company products operate in the Energy Control and Automation market and are designed to provide energy throughout a wide range of forms such as generator sets, renewable, microgrid as well as off-highway machinery.

2.0 Key Responsibilities & Main Duties

Hardware Design & Development

- Design and develop ATS hardware architectures including power paths, switching elements (contactors, breakers, SCRs, or solid-state devices), and auxiliary control circuits
- Create schematics, PCB layouts, and wiring diagrams for ATS control and monitoring systems
- 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)

Power Systems & Compliance

- Ensure ATS designs meet UL, IEC, BS, and relevant regional standards
- Perform fault analysis, derating calculations, creepage/clearance analysis, and thermal design
- Support short-circuit withstand and closing ratings (WCR) and coordination studies
- 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.
- Test and Approvals department – the ATS Hardware Engineer will 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 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: • 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 requirements • Experience defining task breakdowns for a give piece of work and providing estimates • Willingness to travel, role will include travel to US based parent company	Desirable: • Understanding of embedded software • Familiar with stage gated/agile development approaches such as JIRA • Used to working in a high-paced environment
Experience	
Essential: • 3+ years of experience in electronics / electrical design • 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 • Working knowledge & understanding of PCB design & layout requirements particularly with respect to EMC	Desirable: • 5+ years of experience in power electronics or power systems hardware design • Experience in designing test equipment to enable specific testing of unique product features • 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

6.0 What We Offer

- Competitive salary and benefits
- Opportunity to work on mission-critical power infrastructure
- Hands-on involvement across the full product lifecycle
- Collaborative engineering culture with growth opportunities

Created by	Dated Created
Hardware Team Manager	19/12/2025