Automation and Control

Your experienced partner for vendor-independent integrated technologies.
Wood is a global leader in project delivery, engineering and technical services, providing efficient, integrated solutions across the asset life cycle in multiple sectors. We are proud of our rich heritage which underpins our unrivalled breadth and depth of capability. We employ people with the brightest minds and the sharpest skills, who use our leading-edge technology to help our customers succeed.

Our differentiators include our extensive range of services, the quality of our delivery, the passion of our people and our unique culture. True to our values, we work in an open and transparent way; a committed partner to our customers, supply chain and the communities we work with.

Our values set the tone for what is important in our business, they are the essence of our identity and fortify everything we do.

Care
Working safely with integrity, respecting and valuing each other and our communities

Commitment
Consistently delivering to all our stakeholders

Courage
Pushing the boundaries to create smarter, more sustainable solutions

“Each and every individual in our business has the ability to make a significant impact to our safety delivery. Safety is what we care about most and being safe means looking out for yourself and showing care for your colleagues. Keep safety at the heart of every conversation you have.”

Robin Watson,
Chief Executive
Wood’s vendor-independent approach means we provide objective insight and fit-for-purpose solutions to maximise operating efficiency, reliability and productivity.

**Solutions that add value**
Wood is different from other automation and control solutions providers. In addition to being a leading provider of design, engineering and integration services, we are vendor-independent. Our extensive industry and systems experience allows us to assure customers that they have the most appropriate software and hardware for their project’s success. With our robust project management systems, precision tools and the global support of Wood, we can handle any project, large or small, as your turn-key source from concept to commissioning.

**Recognised systems integration expertise**
Wood is a repeat winner of the prestigious System Integrator of the Year award, a Control Engineering Magazine System Integrator Hall of Fame member, and a globally recognised integration provider. Our complete skill set, technical expertise and customer satisfaction have consistently made us the leader in both new systems implementation and legacy upgrades. We combine powerful technical teams with vendor-independence to create cost effective and lasting solutions.

**Range of industry experience**
Wood is involved in a broad range of industries, from virtually all oil and gas segments to automotive manufacturing and fabrication, life sciences, pulp and paper, power, industrial, nuclear, and mining and minerals. You name the industry, and we serve it. Wherever Wood goes our automation and controls experience often follows.

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1,300+ dedicated personnel

41 offices

15 countries
Wood is a leading independent provider of process automation solutions around the world. We are capable of working on control systems of any size and complexity, and can assist during any stage of the project life cycle.

Our span of services results in fewer interfaces, faster implementation and ultimately a more robust and reliable automation system to implement complex industrial processes.

Control systems design and implementation
We are one of the largest vendor-independent systems integrators in the world. Combined with our full engineering capabilities, we execute the smallest to the largest projects, and are capable of working on control systems of any size and complexity. Whether it is a large distributed control system (DCS) or a small programmable logic controller (PLC), our automation professionals draw from a broad experience base and can assist during any stage of the project life cycle to assist in platform selection, design and estimation or commissioning.

Process control solutions
True process control starts with understanding the process. Wood draws our expertise from our people who have come from operating facilities, plants, mills and operations around the world. That expertise combined with a strong engineering background ensures our solutions are truly fit-for-purpose and will deliver safe and reliable startup and full operation.

Main automation contractor (MAC)
Our vendor-independent MAC approach focuses on providing a complete engineering design, procurement, programming, integration and commissioning service on all major controls hardware and software vendors to help identify the best available, proven technologies in the marketplace.

Project execution tools
Wood has served as an over-arching project manager for many large capital projects and offers a solid suite of assurance processes that include scope review and validation at specific stages of projects. These tools include project management tools, applications and processes as well as project execution solutions design to improve quality while reducing costs.

Human factors engineering
The right Human Factors Engineering (HFE) is critical on any automation project where the operations, maintenance and other facility personnel must interface with the process. Some of Wood’s key focus areas are Human machine interface (HMI) design and implementation, alarm management, control room environment and control equipment console layout.

Functional safety and assurance
The safety and security life cycle is a key aspect of process safety. We are experienced, practical and fit-for-purpose. Wood offers complete ISA84 / IEC61511 functional safety and process safety services for all phases of the safety life cycle including implementation and integration services for all major safety systems and control systems.

Remote instrument enclosures (RIE)
Wood provides skid-mounted, self-contained buildings, delivered to the client's facility pre-wired, pre-tested and fully integrated with power distribution and sufficient I/O capacity for existing and expanded plant unit requirements. The insulated, fully redundant air conditioned building is provided by Wood with our own in house cabinet integration, complete instrument and electrical construction hook up and field commissioning.

TengizChevroil Future Growth Project – main automation contractor (MAC)
Wood is serving as the main automation contractor (MAC) on the TengizChevroil Future Growth Project (FGP). FGP is one of the largest automation projects ever executed and it includes over 87,000 hardwired I/O and 65 remote instrument enclosures (RIEs). The project is being executed by Wood in the UK, Houston, Korea, Italy and Kazakhstan.
We execute projects of any size and complexity. We are Main Automation Contractor on the Chevron Jack & St Malo project, one of the largest floating production facilities in the gulf of Mexico, and the TengizChevroil Future Growth Project, the largest automation project in the world.
NORMACONNECT® VPP (V-Pressed Profile) Pipe Clamp Assembly Cell

Wood successfully designed, manufactured, installed and commissioned an automated assembly system for two variants of the VPP clamp in an initiative to increase production per minute for a client.

Robotics

Wood designs, tests, commissions and supports robotic cells in a variety of applications in automated manufacturing and distribution environments. We cover the entire process – including design, virtual modelling and simulation, testing to offline programming, installation, commissioning and life cycle service.

Our vendor independence lets us work with multiple manufacturers and customisable paths, and our benefits bring reduced manufacturing costs, improved production quality, eradication of costly design errors and accelerated time to market.
Facility automation, robotics and vision

Wood has a long and distinguished record in the design and manufacture of special purpose machinery for facility automation. We integrate specific knowledge and experienced engineering in machinery design with sophisticated robotics, optics, materials handling and power systems combined with world class system simulation.

**Materials handling**
Wood offers leading-edge materials handling equipment and software combined with extensive engineering knowledge to provide industrial customers with turnkey solutions to solve specific requirements. We have experience with multiple conveyors system types, automated storage and retrieval, cranes, indexers, monorail and guided vehicles transport, vertical lift elevators and several other conveyance systems.

**Turnkey manufacturing systems**
Wood’s Systems Division designs and manufactures special purpose machines, integrating them with new and existing equipment. Our mechanical and control system engineers have the machinery design experience to provide robotics and automated product handling solutions for a variety of industries.

Our approach, after fully understanding our customer’s requirements, will successfully deliver design, interface with existing equipment, simulation, vision systems, manufacture, testing, installation, commissioning and comprehensive service availability.

**Power systems**
With physical integration systems designed for every level of your business, Wood gives you the power to make your operations safer and smoother, boosting efficiency and reducing costs with power systems including:

- Low voltage control design, motor control centres and distribution switchgear
- Medium voltage control centres and distribution switchgear
- Medium and low voltage refurbishments and extensions
- Containerised substations
- Neutral earthing resistor panels
- Medium voltage metering, local isolation and termination panels
- Integration and network control
- Turnkey packages

**Control panels**
Wood’s assembly teams produce high quality control panels for a diverse range of applications. Our skilled personnel also produce robotic cell control panels and automated manufacturing systems.

Our modular assembly process and methodology can be flexed depending on the volume and scope of your requirements, and everything we produce is driven by Lean Manufacturing and Kaizen techniques, rigorously tested for functionality, workmanship and adherence to both build standards and customer specifications.

**Vision systems**
We provide a seamless integration of vision systems using our knowledge and experience in optics, robotics, and automation controls. Our extensive experience in the automotive industry includes power train, assembly, body shop, and paint. Our turnkey systems provide assembly verification, error proofing and parts identification.

3,000+
robots programmed and commissioned by Wood
20+ million manhours executed since inception

80,000+ sq ft of secure, on-site staging facilities globally
We have designed, configured, installed and commissioned the automation systems for the two largest offshore floating production platforms in the Gulf of Mexico.

- One of the largest independent systems integrators in the world
- Completed projects range from fewer than 50 manhours to over 700,000 manhours
- Only large system integrator with full engineering capabilities
- Monitoring and assuring 10% of the world’s gas supply
- Two-time winner of the System Integrator of the Year by Control Magazine
- System Integrator Hall of Fame Member
- Ensured the delivery of over 200 billion M³ of natural gas to Europe since 2012
- Received nine consecutive safety awards on a project from a major chemical complex operator – over 1,000,000 combined manhours without lost time accident and 1,500,000 manhours of subcontractor labor without a lost time accident
- Main Automation Contractor on some of the industry’s largest projects (>1,000,000 combined manhours)
Simulation, learning and virtual systems

Wood's simulation, virtual commissioning and e-learning capabilities have put us on the forefront of project success by proving our fit-for-purpose design. We have made significant investments in each technology to provide proven solutions for our customers.

Simulation
Our simulation engineers use advanced software to explore and analyse a whole host of ‘what if?’ scenarios, allowing the performance of each solution to be optimised.

Oil and gas operations
Wood offers state-of-the-art digital tools, such as Virtuoso, for upstream production, gathering, transmission and processing operations.

Discrete event simulation (DES)
For manufacturing operations, Wood has DES capability that allows us to create a model of a process or system so that it can be analysed to enhance efficiency. DES enables visualisation of a process or system by creating 2D and 3D models of logical systems or abstract processes, measuring performance and collecting necessary data. It is then possible to run detailed analysis, experiments and what-if scenarios. We are able to try multiple low-cost, no-risk configurations, and then roll out verified solutions.

Virtual commissioning
Wood offers offsite testing platforms in a virtual environment that accurately reflects the real factory, with seamlessly integrated hardware, PLC and robotic systems. Models can be a 2D or 3D CAD "digital twin" of the actual facility. This intricate process minimises human error and ensures continuity.

Training and competency management
Simulation, training and learning are fully supported by our robust and dedicated software product suite. VP Link is a high end simulation application that uses hybrid modelling to dynamically represent chemical processes from simple to complex. ProLearn software is designed to deliver e-learning solutions for science and engineering disciplines. ProDyn provides end-to-end training competency management for cloud-based or OTS software. In addition, Wood offers OperatorSuite, our interactive learning and competence management system to help manage and monitor workforce training to easily track progress and show training compliance.

Virtual/augmented reality (VR/AR)
Wood’s in-house VR/AR benefits are vast and can add significant value to operations, particularly in areas such as training, safety and decommissioning. The customisable technology allows users to experience environments and learn through realistic graphic scenarios in a controlled, safe, cost efficient and repeatable manner. Whether providing the ability to walk around structures on the seabed, or seeing the real life implications of safety action; we can design and build unique VR solutions for our customers.

Testing and validation
Our projects are supported by our rigorous testing processes, validated externally with ISO9001:2000 accreditation, and by our internal quality manager. Throughout all of our design, assembly and installation processes, key elements in your system are monitored and analysed to ensure that any potential errors are prevented.

Wood uses cutting-edge simulation, virtual commissioning and e-learning technology to provide the best fit-for-purpose solutions for our customers.
Just in Time (JIT) discrete event simulation and virtual commissioning project
A luxury brand automotive supplier wanted to introduce a new process into its existing manufacturing facilities to increase production of parts per minute without a large capital investment. Wood’s use of virtual environments for proof of concept, design, validation and commissioning reduced the customer’s investment risk by allowing multiple scenario experimentation without time constraints or production risk. In addition, enhanced operator and maintenance training was possible without risk to the running facility.

70% reduction of in-site based commissioning activities
Nord Stream transports gas from the west coast of Russia to Germany through a 1200km twin pipeline that runs along the bottom of the Baltic Sea. The pipeline uses an innovative telescopic design that saved millions of dollars and our Virtuoso PAS system protects the network from over-pressurisation which could damage the pipeline and result in a costly shutdown.
Intelligent operations

Wood has developed a powerful suite of software and systems solutions designed to streamline every facet of your operations – from personnel training to process execution and management. We combine automated technology and innovative software with our experienced personnel to add value and reliability to our customers' projects.

Wood offers a global team of specialists experienced in applying advanced technology for the design and optimal operation of oil and gas production, pipeline and processing facilities. Our services and solutions provide clear value-added solutions for our customers in the upstream, midstream and downstream oil and gas industry as well as other process industries.

Flow assurance / process solutions
Wood has the largest hardware-independent team of specialists in flow assurance, multiphase flow simulation, computational fluid dynamics (CFD), process simulations, production chemistry, operations troubleshooting and metering and allocation.

Asset performance monitoring
Wood offers advanced field-proven digital tools and world-class technical consulting services to our customers in the upstream and downstream oil and gas industry, process, chemicals and refining industries as well as other market sectors. Virtuoso is Wood’s field-proven suite of digital tools used for online simulation of integrated production operations, inclusive of wells, pipelines and other upstream processing facility operations. Wood also offers other simulation packages, including Pro RPM for performance monitoring and visualisation of disparate plant data sources to facilitate plant management and optimisation.

Environmental management
Specialised tools, like Wood’s ENVision, modernise emissions data collection, aggregation and reporting for upstream and downstream oil and gas and power operations with large daily calculations. ProGHG is our automated system to assist petroleum and natural gas producers in automating the greenhouse gas (GHG) reporting process with a complete solution.

Advanced process control (APC)
With our industry-leading APC skills, Wood uses the latest multivariable controllers designed to improve production processes. We apply knowledge of processes and control technology to increase productivity, profitability and consistency.

Manufacturing operations management and Manufacturing execution systems (MOM & MES)
Our manufacturing services deliver a complete project life cycle – from initial simultaneous engineering activities workshops through to system handover – for projects ranging from simple, small-scale systems to large and complex multi-platform solutions. In the discrete manufacturing industries our simulation and robotics expertise provides our customers clear value through reduced project execution time resulting in faster commissioning and start-up.

Supply chain optimisation
Our proprietary software, including ProPlan and ProSched, optimise manufacturing supply chains through next generation production planning and scheduling. These user-friendly tools, implemented by Wood engineers, help operators create realistic schedules for asset optimisation.

Computerised maintenance management system (CMMS) services
CMMSs and enterprise asset management systems (EAM) provide asset management, work management, materials management, purchasing management and financial management capabilities to asset intensive businesses. Wood has extensive experience working with various applications such as IBM Maximo, SAP PM and Oracle eAM.
Asset protection solutions

Wood designs and implements process control and safety systems to protect your assets. Our asset protection offering provides for cybersecurity, physical security and leak detection components.

As a full-services system integrator, Wood designs and implements fully integrated process control and safety systems. As such, we employ intelligence to secure information within the systems. The major components of Wood’s asset protection platform address cybersecurity, physical security and leak detection.

**Cybersecurity**

Cybersecurity considerations are key in designing and implementing control system networks. Wood designs, configures, integrates, commissions and protects the general life cycle requirements in order to ensure the integrity of networks that constitute and interface to Industrial Control Systems (ICS). This practice area includes consultation for network design as well as project reviews to ensure compliance with customer and industry standards. Wood’s cybersecurity resources keep abreast of the latest industry intelligence regarding current threats and advisories that warn of industrial control system vulnerabilities and exploits.

**Physical security**

Wood has experience with a multitude of hardware and software systems providing security protection for customer assets. These include, but are not limited to, facility CCTV, entry, radar, sensory, imaging, and multiple recognition systems. Systems we provide include:

- Intrusion Detection and Assessment System (IDAS)
- Long Range Detection and Assessment System (LRDAS)
- Microwave Intrusion Detection System (MIDS)
- Fiber Optic Fence Sensor System (FOFSS)
- Plate Recognition System (PRS)
- Security Access Control System (SACS)

**Leak detection**

Wood uses a robust real-time online and offline software system, Virtuoso, to efficiently manage oil and gas operations including process facilities. The Virtuoso/Leak detection system component of the software suite specifically addresses leak detection. Using field-proven simulation technology, Virtuoso/LDS shows probability with a recognition algorithm and alarm notification. Virtuoso/LDS details pinpoint leak location, rate of leak occurring and cumulative release amount.

**Los Ramones Gas Pipeline (Mexico)**

Wood served as the MAC for one of the largest pipeline projects completed in Latin America. We provided full security systems including pipeline monitoring systems, leak detection, SCADA, SIS, CCTV, RTUs, fire & gas, intrusion detection, geotechnics and soil movement, intercommunication and vocation, networking, fiber optic backbone, IP telephony and videoconferencing, networking, switches, routers and firewalls, access point and management. The facility is expected to meet 20% of Mexico’s natural gas requirements.
Wood is a global leader delivering technical, engineering and project services across the entire asset life cycle. We operate in more than 60 countries, employing about 60,000 people. We provide performance-driven solutions from development to decommissioning for a broad range of industries including all energy sectors, process and refining, power and utilities, mining and manufacturing.

For further information please go to:

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