Job Title: Instrumentation & Control Engineer IO0315

Requisition ID **6628** - Posted - (France, 13067 St Paul Lez Durance Cedex) - **Construction and Installation** - **New Posting**

The ITER Organization brings together people from all over the world to be part of a thrilling human adventure in southern France—building the ITER Tokamak. We require the best people in every domain.

We offer challenging full-time assignments in a wide range of areas and encourage applications from candidates with all levels of experience, from recent graduates to experienced professionals. Applications from under-represented ITER Members and from female candidates are strongly encouraged as the ITER Organization supports diversity and gender equality in the workplace.

Our working environment is truly multi-cultural, with 29 different nationalities represented among staff. The ITER Organization Code of Conduct gives guidance in matters of professional ethics to all staff and serves as a reference for the public with regards to the standards of conduct that third parties are entitled to expect when dealing with the ITER Organization.

The south of France is blessed with a very privileged living environment and a mild and sunny climate. The ITER Project is based in Saint Paul-lez-Durance, located between the southern Alps and the Mediterranean Sea—an area offering every conceivable sporting, leisure, and cultural opportunity.

To see why ITER is a great place to work, please look at this video

Application deadline: 06/11/2022
Domain: Construction Domain
Department: Machine Construction Department
Division: Ex-Vessel Delivery & Assembly Division
Section: In-Cryostat, CTS & Auxiliaries Section
Group: In-Cryostat Instrumentation
Job Family: Construction
Job Role: Engineer – 3
Job Grade: P3
Language requirements: Fluent in English (written & spoken)
Contract duration: Up to 5 years

Purpose

As an Instrumentation & Control Engineer, you will be responsible for the onsite assembly and testing of the In-Cryostat Low Voltage (LV) measurement chains components and the control cubicles. These sensors are mainly strain, displacement and temperature sensors of resistive type or optical fiber based type (FBG). In addition, you will have to supervise the qualification of assembly procedures and relevant components including the full LV chains from sensors to the electronics, and the assembly workers training.
You will also be responsible for the development of the control software and for the integration of the control cubicles to the Plant control architecture for the In-Cryostat systems.

Background

The Tokamak Machine requires a lot of instrumentation to monitor the operation of the Magnets and other systems, which are not monitored by plasma diagnostics. Low Voltage and High Voltage instrumentation is fitted to components in the Cryostat, and must operate under vacuum and at cryogenic temperature. Instrumentation shall be specified, procured, inspected prior handover to our Assembly Contractor. Installation, including process qualification, shall be managed with respect to the Construction schedule. This role covers the responsibilities related to the LV Instrumentation. This position is assigned in the In-

Cryostat, CTS & Auxiliaries (ICCA) Section in charge of procurement and assembly of In Cryostat Instrumentation, Magnet Feeders, Cryostat & auxiliaries.

Key Duties, Scope, and Level of Accountability

- Ensures the production of Engineering Work Packages (EWP) for the LV In-Cryostat Instrumentation, this includes specifications, procedures, drawings and diagrams to be produced, reviewed and approved on time for the initial Construction Readiness Review prior instruction to assembly Contractor;
- Acts as the Contract Responsible Officer of the In-Cryostat control cubicle procurement contracts which is ongoing and as the responsible officer of the LV instrumentation control software specifications and development;
- Oversees the qualification of assembly procedures and relevant components, assembly worker training, and LV chains from sensors to the electronics;
- Oversees the installation and testing of the LV instrumentation and control systems, including timely delivery of completion dossiers and supporting the commissioning preparation phase; Develops the control software and for the integration of the control cubicles to the plant control architecture for the In-Cryostat systems;

- Ensures that the relevant interfaces of the equipment and scope are clearly defined, verifying the constructability and the construction readiness;
- Participates in the review of the engineering designs providing expert guidance on design, installation and maintenance aspects related to in-cryostat LV instrumentation;
- Develops the installation procedures for various Tokamak LV Instrumentation systems located inside the Cryostat, based on experience acquired from trials on the different mock-ups available;
- Manages and provides training as required regarding special installation processes for contractors;
- Reviews the various assembly contractors' documents such as technical documents/drawings, procedures, test & examination documents, schedule related documents;
- Monitors the construction and installation execution by the assembly contractor, controls work sequences, schedules and ensures work quality;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- May be required to work outside ITER Organization reference working hours, including nights, week-ends and public holidays.

Measure of Effectiveness

- Completes the LV instrumentation contract management activities and EWP on time, and ensures fixed project milestones are finalized within the defined costs;
- Ensures that LV Instrumentation & Control (I&C) components and the functional specifications for control software are delivered as per IO requirements, within budget;
- Supervises the production of assembly drawings, models and procedures in a timely manner and ensures they are of a high quality;
- Anticipates and/or proposes practical, cost-effective, manageable and efficient solutions to solve issues;
- Communicates efficiently with all stakeholders associated with interfacing systems and management.

Experience & Profile

- ***Professional Experience:***
  - Minimum 8 years' professional experience in Low Voltage Instrumentation sensors, cabling and control system development, installation and assembly within complex environments or international projects.
- ***Education:***
  - Master degree or equivalent in Electronic Engineering field or other relevant discipline;

- The required education degree may be substituted by extensive professional experience involving similar work responsibilities and/or additional training certificates in relevant domains.

- ***Language requirements:***
  - Fluent in English (written and spoken).
- ***Technical Competencies and demonstrated experience in:***
  - Specialized Domains of Expertise (Instrumentation): Knowledge of various sensors used in extreme environments (extreme temperatures, high radiation, UHV conditions etc.) and precision signal processing technology;
  - Assembly of LV instrumentation, optical and resistive measurement chain component including documentation preparation, installation and testing experience is required;
  - Quality assurance and control: knowledge of procedures to verify product compliance and requirements are met;
  - Interface Management: identify, resolve and maintain technical and functional interfaces;
  - Development and testing of application control software developed on industrial control systems;
  - Coordination of Construction & Engineering: Overseeing/participating in installation, assembly, testing of instrumentation, cables and control systems;
  - Commissioning and maintenance knowledge of instrumentation, cables and control systems would be advantageous;
  - CAD and PLM software would be advantageous.
- ***Behavioral Competencies:***
  - Collaborate: Ability to facilitate dialogue with a wide variety of contributors and stakeholders;
  - Communicate Effectively: Ability to adjust communication content and style to deliver messages to work effectively in a multi-cultural environment;
  - Drive results: Ability to persist in the face of challenges to meet deadlines with high standards;
  - Manage Complexity: Ability to analyze multiple and diverse sources of information to understand/define problems accurately before moving to proposals;
  - Instill trust: Ability to apply high standards of team mindset, trust, excellence, loyalty and integrity.

The following important information shall apply to all jobs at ITER Organization:

- Maintains a strong commitment to the implementation and perpetuation of the ITER Safety Program, ITER Values (Trust; Loyalty; Integrity; Excellence; Team mind set; Diversity and Inclusiveness) and Code of Conduct;
- ITER Core technical competencies of 1) Nuclear Safety, environment, radioprotection and pressured equipment 2) Occupational Health, safety & security 3) Quality assurance processes. Knowledge of these competencies may be acquired through on-board training at basic understanding level for all ITER staff members;
- Implements the technical control of the Protection Important Activities, as well as their propagation to the entire supply chain;
- May be requested to work on beryllium-containing components. In this case, you will be required to follow the established ITER Beryllium Management Program for working safely with beryllium. Training and support will be provided by the ITER Organization;
- May be requested to be part of any of the project/construction teams and to perform other duties in support of the project;
- Informs the IO Director-General, Domain Head, or Department/Office Head of any important and urgent issues that cannot be handled by line management and that may jeopardize the achievement of the Project’s objectives.