

china eu india japan korea russia usa

Technical SUMMARY

Call For Nomination

IO/24/CFT/10027943/LLU

Site-wide central supervision of ITER fire protection systems

1. Background and purpose

The Central Safety System for Occupational Safety (CSS-OS) is the ITER central control system in charge of the execution of occupational safety I&C functions to protect people and the environment against non-nuclear hazards. It implements the logic of safety functions and the operator interface and coordinates and supervises other locally distributed safety systems.

The CSS-OS has been manufactured and it is currently in the site acceptance test phase.

In addition to the implementation of safety functions, the CSS-OS has recently been assigned the supervision of the ITER fire detection and protection systems (referred to as fire panels in the rest of the document). Accordingly, the CSS-OS will be able to acquire data, send commands and display in its operation workstations the associated monitoring information.

IO has defined the necessary modifications in the CSS-OS architecture to be able to implement the new scope. Local equipment near the fire panels will be installed to interface panels and exchange information with the CSS-OS communication networks. Then a PLC will centralize the information and interface with the CSS-OS SCADA, which follows a client-server architecture, utilizing two redundant servers situated in separate buildings.

The following figures present an overview of the fire supervision architecture:

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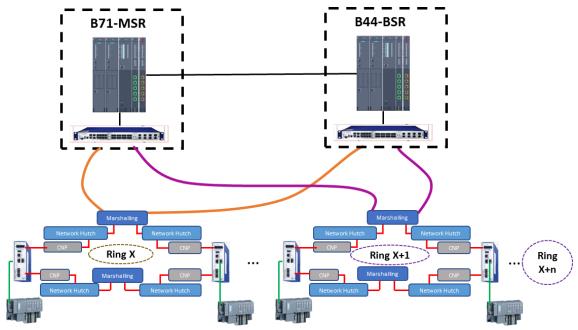


Figure 1 Overview of fire supervision architecture

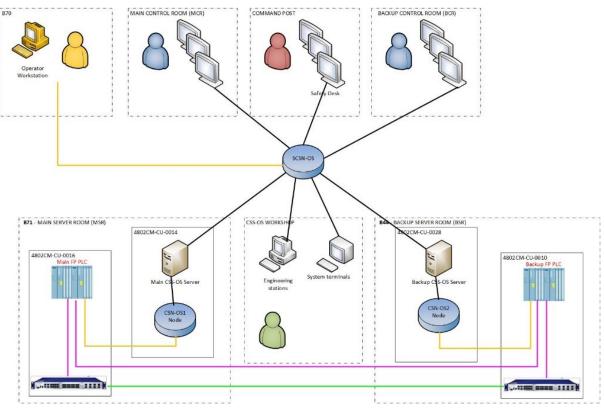


Figure 2 Central part of fire supervision architecture

The purpose of this contract (the "Contract") is to perform the design, procurement, manufacturing, testing, and commissioning of the equipment that will directly interface the fire panels as well as the associated software for the central part of the system, including central PLCs and SCADA.

2. Scope of work

The scope of the work to be performed by the awarded contractor (the "Contractor") covers the following activities for the local equipment to interface the fire detection and protection systems and the associated software for the central part:

- Design
- Manufacturing
- Procurement of all necessary components
- Manufacturing
- Software development
- Factory acceptance tests
- Packaging and shipping
- Site acceptance tests and commissioning
- Production of the associated documentation
- Warranty

Under the scope of the Contract, there are about 45 fire detection and protection systems to be interfaced covering 134 buildings. The forecasted number of points to be monitored is in the order of 15,000.

The fire panels to be supervised will use equipment of any of the following three vendors:

- Siemens.
- DEF.
- ACF-ASD.

IO has developed and tested design solutions for interfacing each brand and the exchange of information with the CSS-OS networks.

The software for the central part, both for PLC and SCADA, will be delivered by the awarded contractor after the acceptance testing and will be integrated by IO in the CSS-OS.

The supervision of the fire panels is not considered a SIL function. However, it shall not jeopardize the capability of the CSS-OS to implement SIL 3 functions.

Installation of the equipment to be supplied is out of the scope of the Contract. Supply and installation of the CSS-OS network infrastructure (cables and cubicles including network hardware) and CSS-OS central components are not part of this contract.

3. Contract schedule

The Contract is scheduled to come into force in December 2024 for a duration of five (5) years. The work will be distributed in packages which will cover the implementation of the interface for a set of fire panels. Each package will have a duration between six months and one year. For each package, the work will start on written demand by IO. Different packages may overlap in time.

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This grouping intends to adapt to the schedule of ITER buildings and provide a stable workload for the Contract.

For each package, the Contractor shall perform the activities of the life-cycle for the delivery of the local equipment and the delivery of the software for the central part. Then IO will install the equipment and integrate the software in the CSS-OS. After that, the Contractor will perform the site acceptance tests and commissioning.

4. Procurement tentative timetable

The tentative timetable is outlined as follows:

Call for Nomination Release	5 February 2024
Receipt of Nominations	26 February 2024
Issuance of Pre-qualification Application	Mid of March 2024
Receipt of Prequalification Application	Early April 2024
Notification of Prequalification Results	Mid May 2024
Issuance of Call for Tender	Beginning June 2024
Tender Proposals Due Date:	End July 2024
Estimated Contract Award Date:	Mid of October 2024
Estimated Contract Start Date:	Beginning of December 2024

5. Experience

The candidate's experience shall cover a broad range as listed below.

- Relevant experience in the design, construction and operation of instrumented safety systems based on Siemens S7 PLC technologies for large heterogeneous facilities.
- Experience in hardware integration of safety industrial control systems.
- Expertise with IEC 61508 / IEC 61511 standards.
- Experience on contract and project management for large multidisciplinary I&C projects.
- Experience in development of safety software for S7-400 FH and S7-1500 F PLC series.
- Experience developing software for Siemens WinCC Open Architecture (WinCC OA).
- Knowledge of Linux operating system.
- Manufacturing, acceptance tests and commissioning of industrial control systems.

6. Candidature

Participation is open to all legal persons participating either individually or in a grouping (consortium) which is established in an ITER Member State. A legal person cannot participate

individually or as a consortium partner in more than one application or tender. A consortium may be a permanent, legally-established grouping or a grouping, which has been constituted informally for a specific tender procedure.

All members of a consortium (i.e. the leader and all other members) are jointly and severally liable to the ITER Organization. The consortium groupings shall be presented at the prequalification stage. The consortium cannot be modified later without the approval of the ITER Organization.

Legal entities belonging to the same legal grouping are allowed to participate separately if they are able to demonstrate independent technical and financial capacities. Bidders' (individual or consortium) must comply with the selection criteria. IO reserves the right to disregard duplicated references and may exclude such legal entities form the tender procedure.

7. Reference

Further information on the ITER Organization procurement can be found at: http://www.iter.org/org/team/adm/proc/generalinfo

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