

Yokogawa Middle East & Africa B.S.C.(c)

Control of Work – Your passport to Safety

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Modern process plants and equipment are designed to work effectively and efficiently, and today's site personnel are highly trained in all aspects of operation. However, the interaction between the two can lead to risks, which must be mitigated to assure plant and workforce safety.



Risk - Centric - Work Control

Major challenges faced by plants operators are:

- Optimising operations & workforce
- Risk centric view of operations
- Accessing real time information and statuses of assets
- Access to right procedures at site
- Reducing delays & non-productive tasks
- Continual improvement on safety
- Increasing planning effectiveness & “hands on tool times”

Integrated safe system of work:

The Yokogawa RAP provides a digital integrated safe system of work that synchronizes operations, people, standards, procedures, and maintenance work requirements in process plants.

The Digital solutions such as

- Permit to Work
- Isolations (LOTO)
- Management of Change
- Turnarounds module
- Incident Management

provide a total control of work solution
enabling a tremendous increase in
operational efficiency, productivity and
safety.

The Yokogawa RAP digital system supports thousands of plant and contractor personnel around the world, allowing them to work and return home safely every day.

The RAP solution integrates with Yokogawa's extensive experience and expertise in the field of asset performance management and process safety. This enables customers to not only operate their assets more productively but also further advance their on-site safety and efficiency.

RAP means “Risk Assessment Process” and it is exactly that risk centric approach that makes RAP different from other systems. It is the risk assessment of the task that characterises the workflow of the system as explained below:

- All tasks have appropriate rigour in their risk assessment process
- Departments are connected and can communicate in real time
- Competency control and authorisations are managed within the system

- The sign off process is streamlined, including measurements like gas testing and weather monitoring

RAP Icons

There are over 500 icons in RAP that are categorised into major groups namely Conditions, Activities and Tools. Each

Conditions						<p>The icons, held in a central cortex, provide a common safety vocabulary that's language independent.</p> <p>They can also be set to include checks, exclusions and regulatory compliance measures.</p>
Activities						
Tools						

Examples of RAP Icons

icon comes with its own knowledge bank for risks, hazards and controls database to mitigate those risks, all of which are based on real life experience and learning. Mandatory Controls and Competency levels are set against each icon to make sure that only those with the right experience and authority can make changes.

Yokogawa RAP is committed to help our customers be more productive, efficient and safe through our control of work solutions. Please contact your local Yokogawa contact who will be happy to answer any questions you may have. With our global reach and presence around the globe, Yokogawa very nearby to help you improve process and workforce safety.

For further queries please contact:
Suriya Narayanan
suriya.narayanan@sa.yokogawa.com

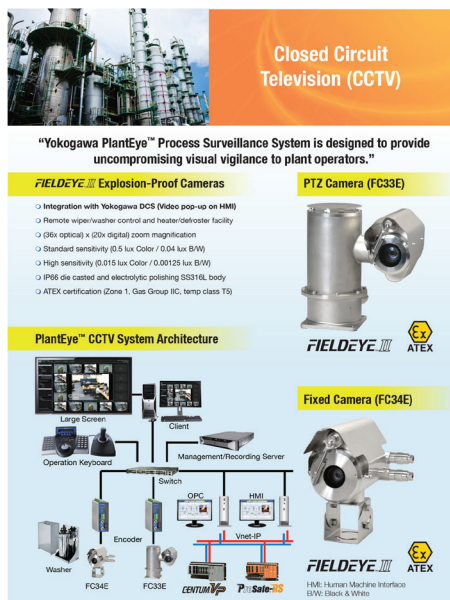
- Suriya Narayanan

Season's Greetings

Yokogawa Middle East & Africa (YMA), is a MAC with Telecom System Integrator (TSI) capabilities, providing seamless Integration of Converged Transmission/Backbone, Fixed & Mobile Voice /Data Systems, Safety & Electronic Security solutions for turnkey/standalone offshore (Fixed & Floating) and onshore (Plants, pipelines & Terminals) projects by collaborating with proven third-party system equipment. In addition, we provide customized solutions for Water, Power T & D Industries.

In this Digital Transformation age, our rich experience in Process Automation solutions enables us to provide converged Automation & Telecommunication solutions based on specific project needs and requirements.

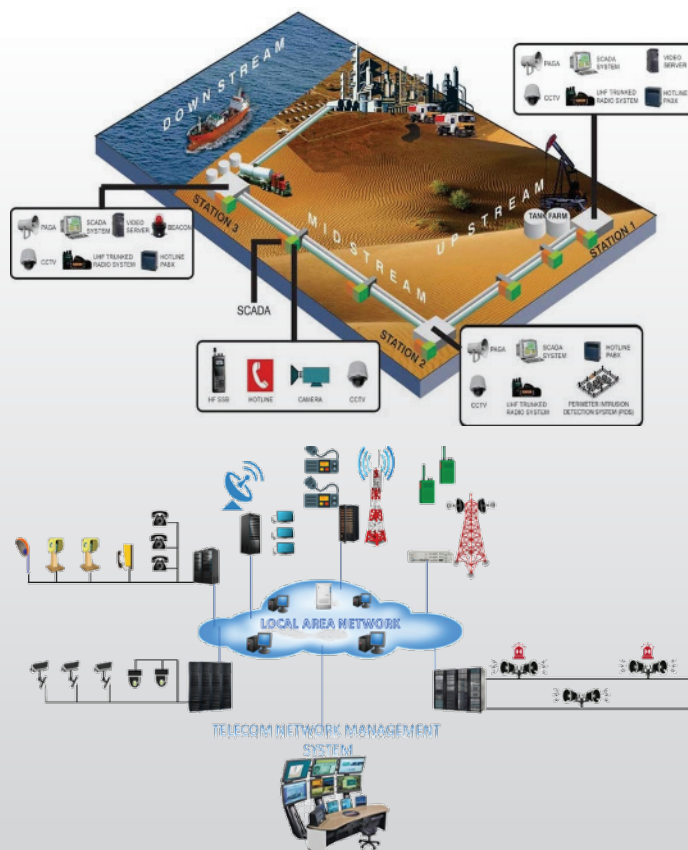
- Closed Circuit Television – CCTV (Process & Security)
- Telephone System – Digital, Hybrid & Hotline –EPABX
- Public Address & General Announcement System-PAGA
- Access Control system – ACS including Secured Gate Entry management
- Automatic Number/License Plate Recognition (LPR/ANPR with UVIS)
- Data LAN & Wireless LAN System
- Structured Cabling System-SCS
- Perimeter & Building Intrusion Detection System- PIDS/BIDS
- Integrated Security Solution including PSIM & SMS
- Fiber Optic Transmission System – OTN, DWDM, SDH & PDH
- Plant Radio (UHF/VHF/HF/ TETRA/MICROWAVE in HH/Desktop/Vehicle mount/Tower)
- Audio/Video Conferencing System
- Voice Recording System
- Personal Tracking System (PTS)
- Marine Security Solutions (GMDSS, AIS, EPIRB, RADAR)
- Network Management System –NMS
- Cyber Security Solutions for Telecom systems
- Staging Area for FAT/IFAT& Site Testing of offered Telecom systems
- Project documentation as per approved VDR of the Project
- Site Support - Installation supervision, Commissioning, Trial run & Hand over Activities



YMA's TSI solutions are a blend of inhouse product profile (FieldEye.II Cameras & DTSX Series) and proven & tested third party equipment's choice of best technologies as per the specific project techno-commercial requirements.

- Standardization & Optimization of Electronic hardware, equipment's selection / Footprints.
- Right sizing the Telecom system topologies & Architectures
- Efficient start up, minimized spares parts & training sessions
- Synthesis approach to reduce the risk associated with multiple suppliers, disintegrated responsibilities, cost overheads and schedule impacts.

For further information please contact
infopsb@bh.yokogawa.com



Smart Commissioning Solutions

In recent years, the concept of flexible binding has become popular in the automation industry. Flexible binding means that the applications and hardware of ICSS are configured independently and can be bound at any time. Flexible binding enables projects to be performed much more flexibly. Its advantages are outlined below.

Tasks that take time in project execution are the manufacturing and assembling of hardware cabinets, field wiring, and loop check.

Yokogawa advocates the system free instrumentation (SFI) approach during Pre-Commissioning/Commissioning Stage and at final SAT stage that can be achieved by combining following solutions which are all part of Yokogawa ICSS:

- Smart Configurable IO - **N-IO**
- System independent Loop Commissioning - **FieldMate Validator (FM-V)** and
- Smart Commissioning Tool - **PRM commissioning support package (PRM CSP)**

1. During Pre-Commissioning/Commissioning Stage

a. Use of N-IO: Smart and Configurable IO

In order to decouple the necessity of Analog vs Digital I/O segregation during design, Yokogawa has developed smart, configurable I/O technology capable of supporting multiple signal types on a per-channel basis, and this development is arguably the most critical for the parallel execution of process/mechanical and automation system design. N-IO is a key technology for Agile Project Execution. It simplifies the whole process of wiring field devices and supports flexible binding.

b. Field Asset Validation and Diagnostic

Another common element of the configurable N-IO system is their ability to use the latest digital communication protocols for communication with smart field devices. When the I/O cabinet and

FieldMate Validator



the field devices are installed, a field asset validation and diagnostics tool called FieldMate Validator (FM-V) can be used to verify performance of the field device and its interaction with the relevant final element, even before the control system is commissioned. FM-V performs N-IO node configuration and Input /Output validation without the controller enabling smooth commissioning and start-up as indicated in below figure.

Along with the flexible binding of the automation hardware layer to the software layer, support a seamless transition to the final phase of project completion, without gaps in the schedule. This is because much of the hardware loop validation is accomplished during system independent loop commissioning using FM-V.

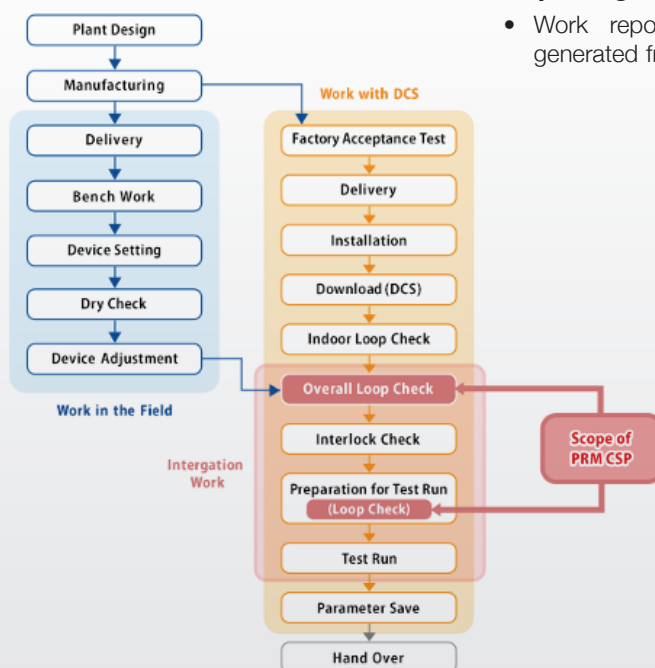


Figure: Scope of PRM CSP

At final SAT stage

c. Smart Commissioning Tool - PRM commissioning support package (PRM CSP)

This is a solution that automatically checks connections, performs loop checks, generates reports, and performs other functions for field devices that support FOUNDATION fieldbus, HART, and other communication protocols. It reduces labor and increases operating quality in plant startup and maintenance.

PRM CSP has following features:

Check Function

- This includes Connection check, Linearization check, Range Comparison check, and Input/output Loop check.

Reporting function

- Work reports can be automatically generated from the results of the above check functions.

Device Information Import Function

- Read and acquire engineering data from the system and generate a device list.

Auto-generation Tasks Function

- Test patterns, which are called as "tasks" in this package, can be automatically generated depending on the filed device types.

- Uday K. Jayaraman

BP Oman extends lifecycle agreement with Yokogawa Oman till 2025

In continuation of the wide network and broad competency Yokogawa Middle East & Africa has built, Yokogawa Oman Limited has developed a FAT area of 700 m2 with associated office facilities in Muscat which is at par with other Yokogawa facilities in the region in terms of infrastructure, quality, HSE and also incorporating the specific requirements of customers. The available FAT area has a capacity to stage around 200 cabinets.

One of the recent success of Yokogawa Oman is the 5-year life cycle agreement extension from bp Oman. Yokogawa Oman Limited has been providing life cycle support, including call centre support and remote contract management, to bp in Oman's Block 61 since August 2017.

In addition to maintenance of the facility, Yokogawa Oman also recently supported bp's successful commissioning and integration of the Ghazeer project (phase 2 of Block 61's development) with the existing plant. The project was going through commissioning and testing of the integrated control and safety system during the first quarter of 2020 when the COVID-19 pandemic struck. Travel restrictions resulted in resource limitations at site. With the support of Yokogawa Oman, bp continued to successfully commission the ICSS without any delays or additional cost.



Total production capacity from Block 61, comprising both Khazzan and Ghazeer, is expected to rise to 1.5 billion cubic feet of gas a day and more than 65,000 barrels a day of associated condensate. With an estimated 10.5 trillion cubic feet of recoverable gas resources, the block has the capacity to deliver approximately 35% of Oman's total gas demand.

The Yokogawa products and services under this new 5-year agreement include the CENTUM® VP integrated production control system, ProSafe®-RS safety instrumented system, STARDOM™ network-based control system, Plant Resource Manager (PRM®) plant asset management package, FAST/TOOLS SCADA software, Exa-series productivity solution software, field wireless and other types of field instruments. The entire facility is monitored and protected by Yokogawa's comprehensive Cyber Security solution.

The new life cycle agreement is an



affirmation of Yokogawa Oman's exemplary service over many years. It will contribute towards increasing Yokogawa's In-Country Value (ICV) in Oman. The company's current ICV is 50% with commitment to achieve higher values in future, creating more jobs and adding to the local economy.



For latest training schedules and further information please visit
<https://www.yokogawa.com/bh/support/customer-training/>



rcma@bh.yokogawa.com



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www.youtube.com/c/YokogawaMiddleEastAfrica



+973-17358258
 800-1166610 (Saudi Toll Free)
 800-96564292 (UAE Toll Free)



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