Plan Your Journey for Digital Transformation with Yokogawa Process Solutions
Since its foundation in 1915, Yokogawa has contributed to society by providing leading-edge products and solutions centering on its measurement, control, and information technologies. To ensure that it continues to meet changing needs and stays on track for another century of steady growth, Yokogawa has instituted reforms and is now working to transform itself in a number of other ways.

Under the corporate brand slogan of “Co-innovating tomorrow,” Yokogawa seeks to establish ever greater levels of trust with its customers and to work with them to create new value for a brighter future, both for its customers and society.

THE YOKOGAWA PHILOSOPHY

As a company, our goal is to contribute to society through broad-ranging activities in the areas of measurement, control and information. Individually, we aim to combine good citizenship with the courage to innovate.

Yokogawa Middle East & Africa B.S.C. (c) (YMA) headquartered in Bahrain, is a wholly owned subsidiary of Yokogawa Electric Corporation in Japan. The company serves as Yokogawa’s regional HQ, supporting users through a team of 1200 professionals operating from our network of local offices spread across the Middle-East and Africa. Yokogawa executes Process Automation, Process solutions and Telecom solutions projects locally providing engineering, commissioning, training and Lifecycle Maintenance Services.

Co-innovating tomorrow™

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Yokogawa Process Solutions Business

Yokogawa Process Solutions Business (PSB) provides production/safety/asset excellence solutions and innovative technology to support their customers to achieve optimized production, safety efficiency and overall plant performance.

Production Excellence
- Plant Information Management
- Alarm Management System
- Energy Management Solutions
- Advanced Process Control
- Multi-Purpose Dynamic Simulator
- Oil & Gas Movement, Blending, Storage and Terminal Management Systems

Safety & Asset Excellence
- Cyber Security
- Modular Procedural Automation
- Plant Wide Asset Management
- Operator Training Simulator
- CCTV & Telecom Solutions

Digital Transformation
- 3D/Virtual Reality Operator Training Simulator
- Robotics Service Platform
- Field Work Digitalization
- Drones
- Collaborative work Environment
- Big Data Analytics

Consultancy/Design Services
- Alarm Rationalization
- Loop Tuning
- Control room design
- Cyber security Audit
- Digital Transformation
- Advanced process control- Feasibility & Benefit Study
- Operation & Profit Improvement Program
- Advanced Operator Graphics
- Energy management/optimization

Production Excellence

Exaquantum PIMS & Alarm management System

Exaquantum/PIMS:
Plant information management system is centralized database containing Process Data and Alarms and Events. Exaquantum can acquire data from all facets of a process and transform that data into easily usable, high-value, widely distributed information.

Exaquantum/ARA:
Operator & Area KPIS & reports based on EEMUA191 & ANSI/ISA-18.2.

Exaquantum/SER:
Sequence of Events & Trip recording for root cause and trip analysis.

Exaquantum/AMD:
Master Alarm Database, assists in monitoring, assessing and auditing the behavior of alarm set points as part of an alarm documentation and rationalization program.
Advanced Process Control

Co-development with Shell, one of the world’s leading pioneers in development and application of Advanced control technologies in the energy industry. **Platform for Advanced control & estimation (PACE)** brings multi-variable control, quality estimation, complex calculation, user interface definition all in one application.

The latest platform for Advanced control & estimation is the best in class suite to rapidly deploy & sustain Advanced control Applications that generate benefits through-out the plant lifecycle.

- Estimate benefits of introducing Advanced process control.
- Stable base layer control with Advanced regulatory control
- Sustained performance with Advanced monitoring & diagnostics

Energy Management

Yokogawa/KBC **Visual MESA** EMS is the world’s first integrated monitoring, scheduling, and real-time optimization technology for managing energy systems. It provides insights for effective planning, scheduling, and energy trading. Take real-time actions in an open loop (in advisory mode) or closed loop system (acting directly on the control system set-points) to deliver fast and accurate operational decisions.

**VM-ERTO/ECLRTO**

Visual MESA Energy Real-time Optimizer (open or closed loop) is the leading real-time solution for modeling and optimization of energy systems, including discrete variables.

**VM-EM**

Visual MESA Energy Monitor offers a feature set specifically built for the monitoring of energy systems (KPIs Calculation, balances, etc.) and optimization of only continuous variables.

**VM-MPO**

Visual MESA Multi-Period Optimizer is the energy management tool for the optimal scheduling of utility assets.
Oil & Gas Movement, Blending, Storage & Terminal Management

Terminal Logistic Suite performs applications of loading and/or unloading trucks, ships and tank cars—in addition to offering solutions in inventory management, master data management, security control, audit trail, and other movements operations such as pipeline transfer. Moreover, truck management, product tracking and jetty scheduling are additional features that support customer terminal operation more safely and efficiently.

Multipurpose Dynamic Simulator

Petro-SIM is leading process simulation software and optimization platform for driving excellence in facility performance and organizational productivity. At the core of Petro-SIM’s technology are rigorous process simulation models which generate dependable results in an intelligent, user-friendly environment. Petro-SIM is the go-to simulation platform for upstream, midstream and downstream refinery and petrochemical processes.

Petro-Sim Applications

- Rigorous steady state and dynamic simulation models for upstream, midstream and downstream refinery and petrochemical processes
- Trusted analytical tools for conversion unit monitoring, planning, optimization, and design and engineering studies
- Multi-period optimizer will optimize now for the best possible future outcome
- Support in making utility configuration decisions
- Detailed, rigorous kinetic models of reactors
- Comprehensive modeling of pressure, volume and temperature (PVT) and physical properties of pure components and complex mixtures

Yokogawa has many years’ experience in providing oil movement control and blending solutions. Yokogawa Oil movement, Storage Blending & Offsite solutions focus on providing an integrated advanced technology platform considering aspects of the solution such as integration and user friendliness.
Safety & Asset Excellence

Cyber Security

Yokogawa Offers Multiple Layer of Cyber Security Controls Inline to Global Standards to Protect Industrial Control and Safety Systems from Evolving Known/Unknown threats based on Defense In Depth Strategy. Yokogawa Lifecycle approach enables Customer to Secure, Defend, Contain, Monitor and Manage with Advanced Security Solutions.

Modular Procedural Automation

Exapilot is suitable for the operation which requires a lot of manual operation on the operator stations or requires a lot of field operation such as.

- Shutdown/Start-up of units
- Check of shutdown valve
- Changeover of pump/compressor
- Change of the quantity of production
- Change of materials
- Grade change, etc.
- Reliable operation by automating of procedure.
- Efficient operation by reducing execution time of procedure.

- Safe operation by reducing the incidents caused by human error

Security Assessment & Analysis

Network Security
- Network Hardening
- Zoning and Conduiting
- Secure Network design inline to standards
- Network Access Control
- Network Intrusion Detection System
- Network Monitoring

Advanced Security
- Compliance & Vulnerability Management
- Security Information & Event Management
- Managed Services

Network Perimeter Security
- Firewalls with IPS for DMZ
- Firewalls with IPS for 3rd Party Segregation
- Data Diode

Business Continuity & Remote Support
- Backup and Disaster Recovery
- Secure Remote Access

Customized End Point Security
- Windows Domain & Account Management Solutions
- Yokogawa Approved Antivirus Solution.
- Yokogawa Tested Windows Patch Update Solution
- Yokogawa Application Whitelisting
- System Hardening
Operator Training Simulator
OmegaLand (Integrated Environment for Dynamic Simulation) connects people, knowledge, expertise, experience, and the virtual world (simulation). It is achieved in a variety of forms by utilizing modeling and dynamic simulation technologies in the plant life cycle. The core objective of our solutions is for Plant Operations to maximize operational excellence through increased reliability, safety, and efficiency without compromising overall security.

OmegaLand OTS Enterprise
OTS Enterprise provides standard emulated PCS functions through the WEB or over the COMPANY network where applicable

Omegaland Applications:
• Operator Training
• Operation support
• Process Analysis and Examination
• Control assistant & improvements

Plant Wide Asset Management
InsightSuiteAE Yokogawa Plant Wide Asset Management Solution ensure that plant assets operate at optimum efficiency while keeping maintenance costs to a minimum.

ISAE provides a simpler, more holistic view by integrating Plant's Mechanical, Electrical and Instrument assets monitoring and provides overall performance of plant wide assets at a glance.
• Diagnostic tools and asset health navigators with visualization of core assets
• Target bottlenecks. Identify problems and risks are analyzed
• Boost the operational efficiency of plant throughout its lifecycle.
Telecommunication Solutions
Seamless Integration of Converged Transmission/Backbone, Fixed & Mobile Voice/Data Systems, Safety & Electronic Security solutions for turnkey/standalone onshore, offshore & pipeline projects

Sub-Systems
• OTN/WDM/SDH/PDH
• Process & Surveillance CCTV
• Access Control System
• PAGA & Call Stations
• EPABX/Telephony System

Closed Circuit Television System
Yokogawa FieldEye.II CCTV supports Integration with DCS to direct the operator’s immediate action to avoid severe upset by providing Video Pop-up on Operator’s HMI in case of critical and emergency situation or F&G alarm.

“Yokogawa PlantEye™ Process Surveillance System is designed to provide uncompromising visual vigilance to plant operators.”

Closed Circuit Television (CCTV)

**Yokogawa PlantEye™** Process Surveillance System is designed to provide uncompromising visual vigilance to plant operators.

**FIELDYE™ Explosion-Proof Cameras**
- Integration with Yokogawa DCS (Video pop-up on HMI)
- Remote wiper/washer control and heater/defroster facility
- 36x optical x 20x digital zoom magnification
- Standard sensitivity (0.5 lux Color / 0.04 lux B/W)
- High sensitivity (0.015 lux Color / 0.00125 lux B/W)
- IP66 die casted and electrolytic polishing SS316L body
- ATEX certification (Zone 1, Gas Group IIC, Temp class T5)

**PTZ Camera (FC33E)**

**Fixed Camera (FC34E)**

**PlantEye™ CCTV System Architecture**

Process Solutions Business
The Power to Transform
Yokogawa, being a global provider of digital automation technology and associated services, shared the overall value chain of successful digitalization outcomes with the addition of energy management and supply chain optimization capabilities towards industrial autonomous operation. According to the IA2IA concept for the IA business, Yokogawa co-innovates with its customers to enable agile and adaptive management and synaptically bring together organizations’ people, systems, data, services, and supply chains, thereby optimizing operations and enabling the sustained creation of value.
3D/Virtual Reality Operator Training Simulator

Yokogawa has developed 3D/VR OTS that can be used for both operation and maintenance training by integrating the existing dynamic process simulation technology with the latest 3D visualization technology.

3D/VR OTS immerses the user in a virtual surrounding, primarily through visual, auditory and sensory feedback. VR is typically achieved by wearing a headset like Oculus.

Applications:
- Plant/units start-up and safe shut-down operations and sequences
- High risk maintenance activities and procedures
- Reports on the operators’ training and assessment performances
- Simulate OHS, process safety incidents and response plan training and assessment

Field Work Digitalization

Yokogawa Field Assistant Providing operation information on site and recording & management of site information by utilizing Mobile Augmented reality technology

- Acquire and integrate operation and maintenance information scattered around the plant
- Improve maintenance efficiency and quality (reduce patrol time, maintenance cost, and production loss)
- Analyze the acquired records to improve the plant maintenance management work
Yokogawa Robotics Service Platform

Yokogawa is positioning ourselves to bridge certain robotics technologies into our customer’s business process i.e. ICSS and manufacturing/production management systems. This is achieved by below steps:

- Understanding customer use case
- Technology evaluation and identification of suitable Robotics/Drone technology
- Partnership with Robotics/Drone technology suppliers
- Development/Implementation of application
- Integrated Smart Data Analytics based on business needs
- Training
- Robotics as a Service (RaaS) for sustainability

Robotics/Drones

Robotics/Drones technology is not new to industrial automation, but recent technologies are making it more practical for a wider variety of applications, and are becoming cost effective and easy-to-use, especially for mobile robots used in industrial plants.
REGIONAL HEADQUARTERS
Kingdom of Bahrain

YOKOGAWA NETWORK IN THE MIDDLE EAST & AFRICA

BAHRAIN
Yokogawa Middle East & Africa B.S.C. (c)
P.O. Box 10070, Manama
Building 577, Road 2516, Bousaada 225,
Muharraq, Kingdom of Bahrain
Tel: +973 17358100, Fax: +973 17336100
Email: infopsb@bh.yokogawa.com

Yokogawa Engineering Bahrain (S.P.C)
P.O.Box 10070, Bldg 695, Road 4616
Block B64, Nuwaidrat, Manama
Kingdom of Bahrain
Tel: +973 17707800, Fax: +973 17701870

SAUDI ARABIA
Yokogawa Saudi Arabia Company- Dhahran
Ibn Rushd Street, Dhahran Techno Valley, Dhahran
P.O. Box 3368, Al-Khobar 31952
Kingdom of Saudi Arabia
Tel: +966 (13) 331-9600, Fax: +966 (13) 330-1444

Yokogawa Services Saudi Arabia - Jubail
P.O.Box 10318, Jubail 31961
Jubail Industrial City, Industrial Support Area
No. 1, Road No. 114
Kingdom of Saudi Arabia
Tel: +966 (13) 3429600 Fax: +966 (13) 3407222

UNITED ARAB EMIRATES
Yokogawa Middle East & Africa B.S.C. (Closed - Abu Dhabi)
B46-24JS, ICAD-1, Musaffah,
P.O. Box 112873, Abu Dhabi, United Arab Emirates
Tel: +971 (2) 5101888, Fax: +971 (2) 5507455

Yokogawa Engineering Middle East & Africa FZE-Dubai
P.O.Box 18112, Jebel Ali Free Zone,
Bldg No. LIU FZ51-BH03, Free South Zone
Dubai, UAE Tel: +971 (4) 8049100,
Fax: +971 (4) 8860844

QATAR
Yokogawa Middle East & Africa B.S.C. (c)
Al Matar Commercial Center, 1st Floor, Office Nos. 106
& 107, Building No: 63, Zone No: 45, Al Matar Street
(Airport Road), P.O. Box 2428, Doha, Qatar
Tel: +974 44452444, Fax: +974 44313717

OMAN
Yokogawa Oman Limited L.L.C.
Building 232, Plot No 785, Complex 252
Ghala Heights District, P.O. Box 2667
Muscat, Sultanate of Oman
Tel: +968 2423 0400 Fax: +968 2423 0401

SOUTH AFRICA
Yokogawa South Africa (Pty) Ltd.
Yokogawa Anglophone African Region (Pty) Ltd.
Block C, Cresta Junction, Corner Beyers Naude
Drive and Judges Avenue Cresta, Johannesburg
PostNet Suite #222, Private Bag X1, Northcliff,
2115, South Africa
Tel: +27 11 831 6300 / +27 11 057 8100
Fax: +27 86 411 8144

ANGOLA
Yokogawa Africa Holding B.V. “Sucursal de Angola”
Expressa Way Km 6, Towards Benfica-Cacuaco
Shop #2–Phase 2 Benfica, Belas
Luanda, República de Angola
Tel: +244 222 039 668 Fax: +244 222 039 679

NIGERIA
Yokogawa Nigeria Limited
Jos Hansen house
Km 16, Ikorodu Expressway, Ojota
Lagos, Nigeria
Tel: +234(0)17009900/+234-(0) 13423447

Contact us
For more information, please contact us on:

www.linkedin.com/company/yokogawa

www.youtube.com/c/YokogawaMiddleEastAfrica

@Yokogawa_MEA

infopsb@bh.yokogawa.com