YOKOGAWA

Rawabet روابط

YOKOGAWA MIDDLE EAST B.S.C. (c)
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Activities in Steadily Growing Markets

New facilities completed in Saudi Arabia

The inauguration ceremony for the new facilities of Yokogawa Saudi Arabia (YME-KSA) was held on March 4 at the Dhahran Techno-Valley campus of the King Fahd University of Petroleum and Minerals (KFUPM), and was hosted by Mr. Isao Uchida, Chairman of Yokogawa Electric Corporation and Dr. Khaled Salem Al-Sultan, Rector & CEO of the university. Mr. Abdullah S. Jum'ah, the CEO of Saudi Aramco, the world's largest oil company; H.E. Mr. Shigeru Nakamura, the Japanese Ambassador to Saudi Arabia; and other people were cordially invited.

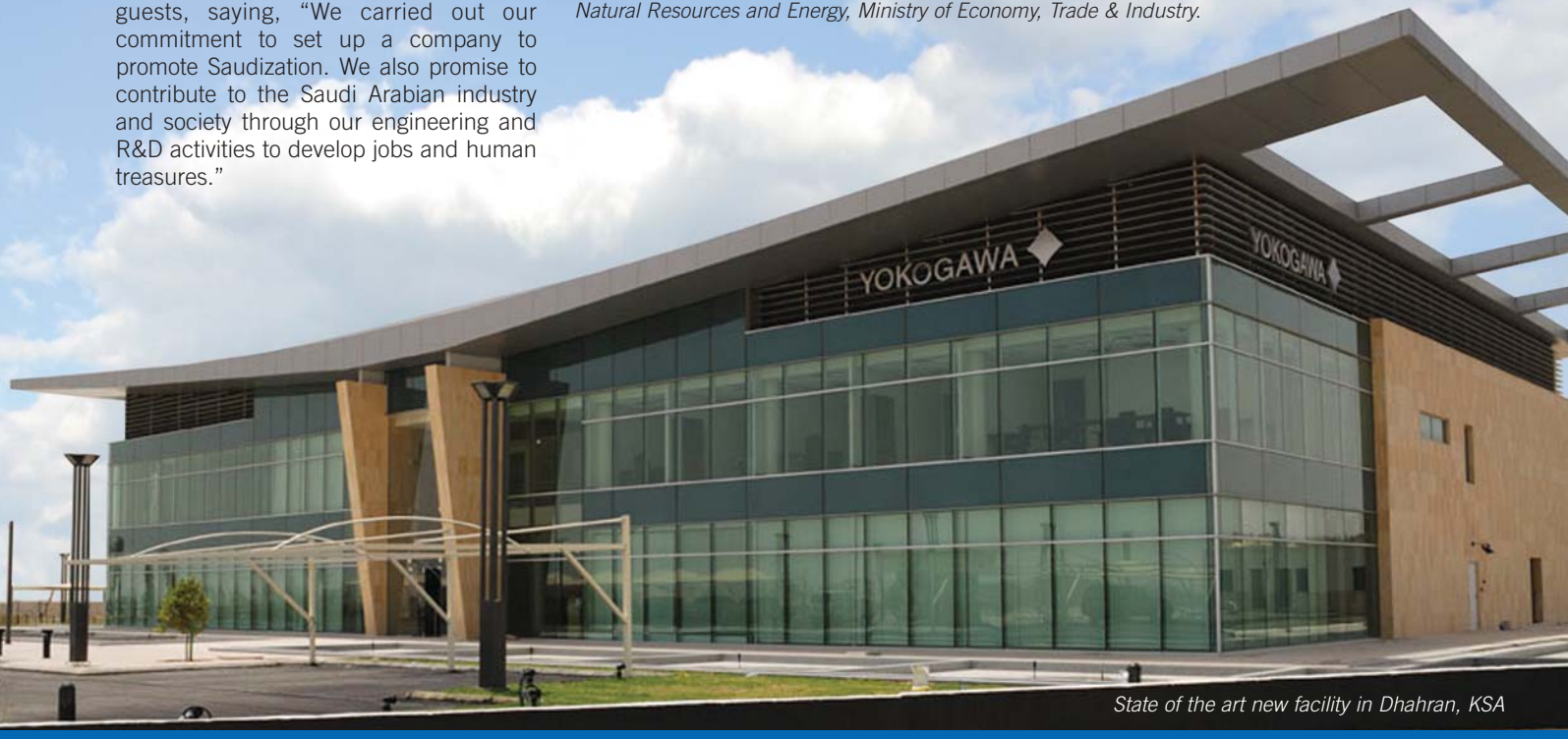
This project was started by Mr. Uchida in September 2005 in response to a request from Mr. Jum'ah to establish a local subsidiary, and the commitment had been made by Mr. Uchida at a CEO conference hosted by Saudi Aramco.

At the ceremony, Mr. Uchida greeted the guests, saying, "We carried out our commitment to set up a company to promote Saudization. We also promise to contribute to the Saudi Arabian industry and society through our engineering and R&D activities to develop jobs and human treasures."

Mr. Jum'ah congratulated Mr. Uchida, saying that Yokogawa had kept the promise made in Milan and that a dream had become a reality. He concluded by saying that he appreciated Yokogawa's contribution to Saudi Arabian industry and society through the recruitment and transfer of technologies.

Despite a powerful sandstorm, the ceremony was attended by 30 top executives of Saudi Aramco, 230 staff including Saudi Aramco's other members, the executives of SABIC and other companies.

The ribbon-cutting ceremony. From the right: H.E. Mr. Shigeru Nakamura, Dr. Al-Sultan, Mr. Jum'ah, Mr. Uchida and Mr. Shinsuke Kitagawa, Head of the Natural Resources & Fuel Department, Agency for Natural Resources and Energy, Ministry of Economy, Trade & Industry.



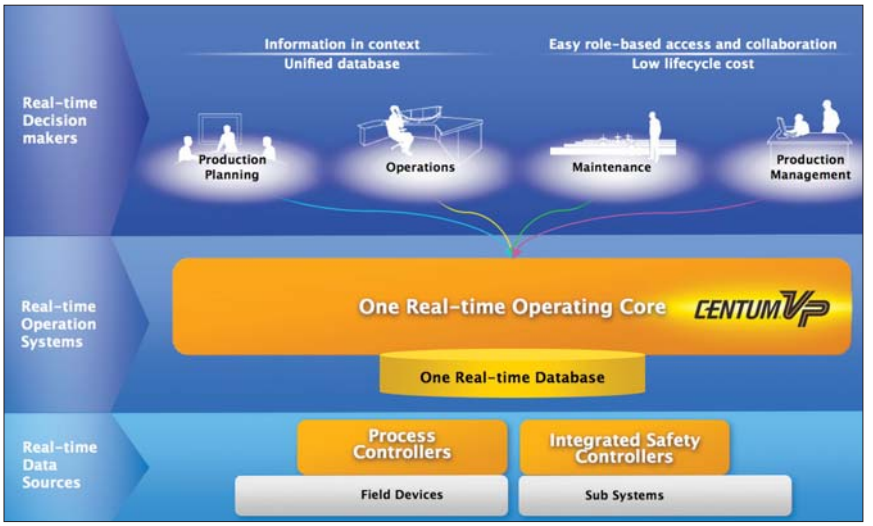
State of the art new facility in Dhahran, KSA

The Road to Operational Excellence

By Raju Seshadri
Group Leader, Industrial Automation Marketing

The launch of CENTUM VP has got the whole industry talking. Very precise, very potent, very punctual, CENTUM VP is the next evolutionary step, integrating three solutions into one, bringing better information visibility, performance foresight and operational agility. The new integrated production control system is set to become the flagship platform for the VigilantPlant Operational Excellence initiative of Yokogawa.

In a quickly changing industry it is not only about technology, but more importantly, it is about helping people get their jobs done right. As the originators of the first DCS, known as CENTUM, Yokogawa has spent more than 30 years paying careful attention to what plant managers, engineers, and control room operators have been saying.



What are the features and functions of CENTUM VP?

The See/Know/Act vigilant cycle represents the core philosophy and value proposition of the VigilantPlant strategy and that is what CENTUM VP is targeting for.

SEE clearly: "Technology made intuitive"
Consolidate: Common interface for plant assets, production processes and operating procedures
Contextualize: Meaningful grouping of information for quick and intuitive understanding
Focus: Role-based delivery of actionable, prioritized information and advisories

KNOW in advance: "Information made easy"
Access: Swift on-demand access to both historical and real-time information
Analyze: Quick and easy generation of role-based analytics and decision intelligence
Anticipate: Real-time utilization of predictive intelligence in daily operations

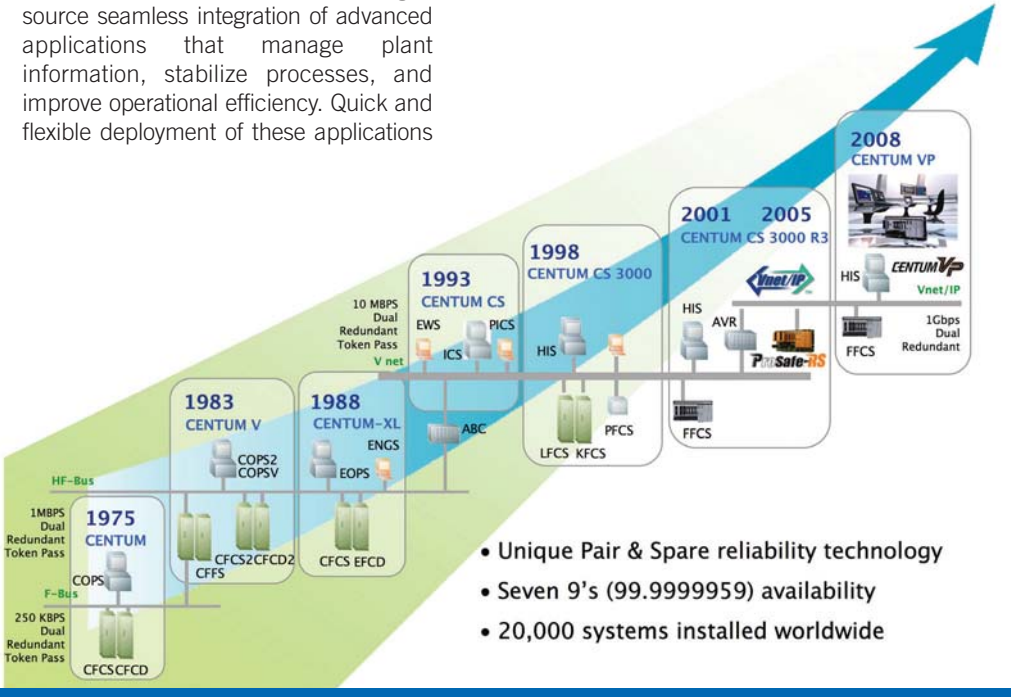
ACT with agility: "Everyone is smarter"
Navigate: Speedy task coordination and intuitive navigation of complex procedures
Systemize: Continuous systemization of operational knowledge and best practices
Optimize: Ongoing optimization of assets, processes and procedures

What are the benefits of CENTUM VP?

The advantage of CENTUM VP is that it establishes a single real-time plant database that serves all of these key functions in real time, setting the foundation for a unified operating environment. This unified architecture improves information efficiency and enhances the safety and agility of plant operations. With this unified plant database, CENTUM VP enables single-source seamless integration of advanced applications that manage plant information, stabilize processes, and improve operational efficiency. Quick and flexible deployment of these applications enables the user to improve the safety, availability, and profitability of a plant on an ongoing basis.

CENTUM VP is the eighth generation member of the CENTUM series; it integrates plant information management, asset management, and operation support functions, achieving a unified operating environment.

Let your plant evolve to VigilantPlant.



Turbomachinery Control from Yokogawa

By Sumitava Sengupta
Dept. Manager, Power Solutions Dept.

Yokogawa has always been actively listening to the customers' feedback and suggestions, so that the huge R&D expenses (8% of annual turn-over) can really result in "Customers' delight".

One more such step was taken when Yokogawa unveiled its solution for Integrated Turbomachinery Control under the Centum VP Production Control System. The beauty of the solution lies in the following:

- **True integrated solution**: no separate system framework. It is "part and parcel" of the flagship Yokogawa Centum CS300 system under the umbrella of Centum VP Production Control System. The solution is centered on 2 special I/O modules - but uses the same basic framework: Field Control Stations, I/O nodes etc., which the market has appreciated for the highest reliability, availability and sophisticated control for years. The form factors of the special modules are exactly the same as Yokogawa's existing FIO series of modules. Thus you can use the same Yokogawa DCS in your existing plant and just extend it to control the turbomachineries.
- **Redundancy**: As with all I/O modules from Yokogawa, the special modules are available in true redundant configuration.
- **On board High Speed Protection**: The special hardware makes it possible to implement over-speed protection in the intelligent "High Speed protection" module and can trip a turbine within 5-10 msec. The special modules have the intelligence to do that without the help of the Field Control Stations (Controller).
- **On board fast PID**: The special modules allow PID loops to be executed at the module level @ 5-10 msec loop response time. This is typically used for fast positioning loops (e.g. driving the servo for individual Control & Intercept valves of Steam Turbines for Steam Admission Control).
- **Integrated SOE with 1 msec time stamping resolution**: The special High Speed Protection module offers 1 msec SOE for the Digital Inputs, which is truly integrated with the plant-wide SOE in the DCS. This is a true value adder for the diagnostics of trips for mission critical applications like turbomachinery control.
- **Target-less logic test function**
- **No external 3rd. party hardware**: With the DCS centric solution from Yokogawa, one does not need any external hardware for the special non standard inputs and outputs, those are necessary for Turbomachinery control.

A typical application: for Steam Turbine Control & Protection

The picture below depicts a typical deployment of Yokogawa Turbomachinery Control & Protection application for a Steam Turbine along with the interfaces with the hydraulic system.

The Overall Load (MW) / Speed control loop is executed in the FCS, typically at 50 msec.

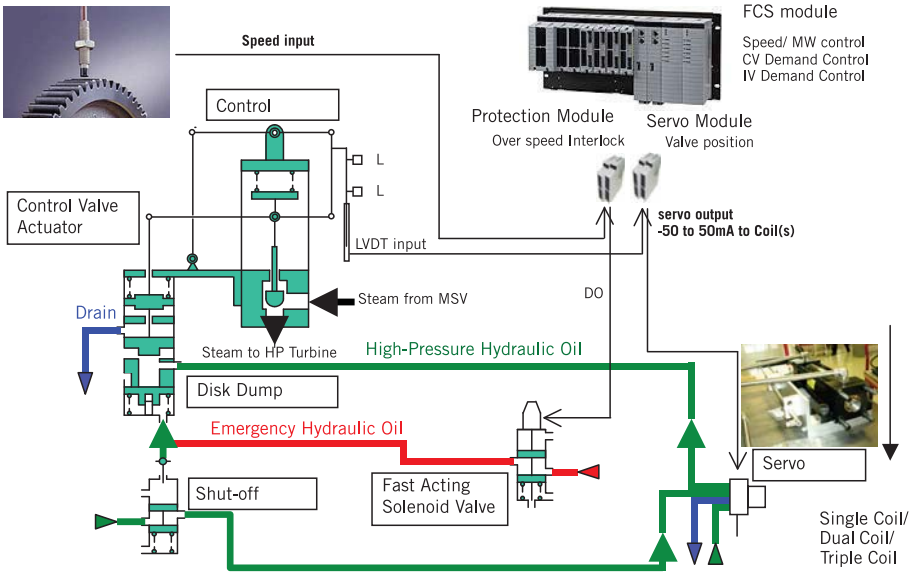
The High Speed Protection module receives the speed signal (typically 3 nos.) and the median is used by the FCS (Controller) CPU to execute the MW/ speed loop and generate the CV (Control Valves)/ IV (Intercept Valve) demand signals and sends that to the CVs/IVs for steam admission control to the steam turbine.

The Servo modules acts as a positioning controller for the servo for CV/IV using LVDT position feedback and does it @ 5 sec.

When protection is actuated, the analog output is driven down fast to close the CV/IV.

The High Speed Protection module detects the over-speed and drives the digital outputs to the Shut-off valves and ensures that the CV/IVs also close fast. This is done at 5-10 msec loop execution time.

A typical application: for Steam Turbine Control & Protection



Introducing Yokogawa's Process Solutions Center

By Stelios Kentritas
Vice President, Process Solutions Center

The Process Solutions Center of Yokogawa Middle East has echoed Yokogawa's global initiative to consolidate competence and experience, adding more value to its CS3000 solution.

The company's positioning of Process Solutions refers to process systems and applications that complement our core CS3000 DCS functionality. They typically reside in the functional layers above the CS3000 and outside the landscape of the classic ERP functions," explained Stelios Kentritas, General Manager of Process Solutions at Yokogawa Middle East.

"We can think of Process Solutions as a mosaic of closely integrated applications and systems addressing safety and environmental concerns, plant stabilization, optimized production and operations management by adopting advanced process control, plant information management and advanced operation assistance applications"

Yokogawa's Process Solutions can go beyond running a plant better. It allows plant management and operations to drill down to more details for improvements.

"They address such business challenges as improved yields, on-spec production, optimized operation, improved safety and skills for operations," Stelios points out. "Yokogawa Process Solutions can demonstrate tangible benefits and contribute to corporate imperatives and objectives of plant operations."

Yokogawa has launched a Process-Solutions campaign to identify areas of operational improvements. The initiative begins with a questionnaire adapted to different types of plants and operations, from refining and petrochemical to oil and gas.

After obtaining answers, Yokogawa can identify and propose prioritized initiatives to improve production efficiency. Site audits can provide further justification to your management to commence and support the initiative. Call or e-mail the Process Solutions Center (tel 17358764 and email psc@yokogawa.com.bh) to learn more about Yokogawa's newest service.

Success Story: Taking the lead in Sohar Refinery

By Chris Bamber
Dept. Manager, Business Development
Dept. - Process Solutions Center

Sohar Refinery, part of the Oman Refineries and Petrochemicals Company, is an 116,000bpd facility located 230km North West of Muscat. It is a grass root refinery with a crude distillation unit to process mixed feed stock and other process units like RFCC, Hydrotreater, etc.

With the refinery's alarms reaching a rate of around 100,000 per day, it was clear that an alarm management system was required. "The plant was still in stabilization mode, but as part of that process, we still needed assistance in reducing our alarms to a more manageable level," said Mr. Manicka P Sundaram, Engineering Manager.

"We approached Yokogawa for their assistance. Exaplog, the event analysis package based on Yokogawa AOA (Advanced Operation Assistance) initative was recommended by Yokogawa's Process Solutions Group in Bahrain."

The Exaplog system was installed in August 2007, and went live two months later. A team leader from Sohar Refinery was assigned to be the "Exaplog Champion" responsible for analyzing the events on a daily basis.

The analysis was added to the daily operation report, so that the operations department was kept fully involved in the rationalisation process. The top ten most frequent alarms are analyzed daily to find out which ones of them are unnecessary. Then weekly prioritization determines which ones shall be eliminated as unnecessary. Analysis revealed that the most of the alarms were related to operational issues.

"Within four months of continuous analysis, we have been able to reduce the alarms to a level of 20,000 per day," added Manicka. "Of course, we do not want to stop there. We expect further success in reducing our alarms by another 30-50% by December 2008. Exaplog has helped us considerably reduce the number of unnecessary alarms in a short period of time."

Yokogawa SCADA Solutions in pace with the latest advances in technology

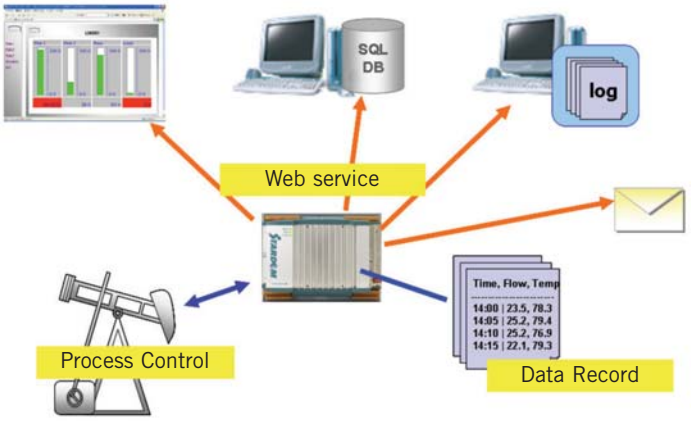
By Balaji Durairaj
Manager, Network Control Solutions Center

The last issue of Rawabet, had in depth coverage on 'Remote Maintenance with use of Foundation Fieldbus Technology' and 'Security against Cyber Attacks'. This issue, Rawabet covers 'Autonomous Function' and 'Data Buffering' .

Autonomous Function

Can you imagine SCADA function in Controller – Yes, STARDOM has one in it. With use of Java function (called Infowell) embedded in STARDOM Controller, only Internet Explorer is needed in any COTS PC to have anytime, anywhere access to SCADA information, Email Notification, Data Modification and Data Logging. All of them are accessible without any need to have specialized Java knowledge and without dedicated SCADA Software requirement.

Moreover you can access not just "Read Data", but can also "Write Data" as well and with very secure access permissions.



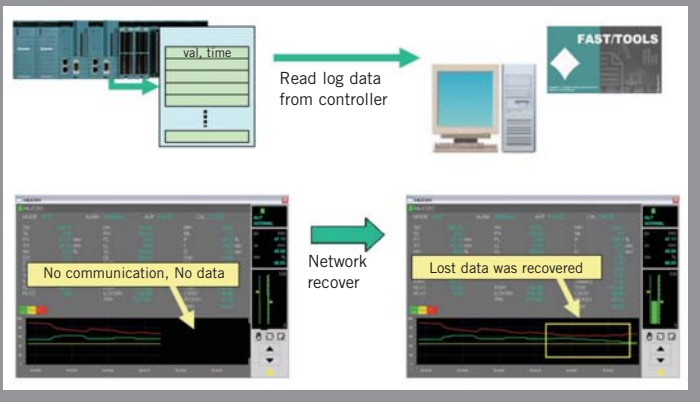
Data Buffering

STARDOM Controller in unique combination with Yokogawa's FAST/TOOLS SCADA supports Event/Data Buffering thus making Communication Network Fault Tolerant.

STARDOM shall continue to acquire and log data with time stamp, even in a condition when there is loss of communication between STARDOM and FAST/TOOLS SCADA.

On Network Recovery, FAST/TOOLS shall be able to instantaneously read the data logged in STARDOM during the communication loss period.

The biggest advantage of this feature to users is, it ensures no critical information from the remote and distributed locations are missed out by the Operators in the Control Room including the blind time period, thereby adding to Efficient Information Management and Better Decision Making.



ProSafe-RS Safety System

A Revolution in Safety Instrumented System (SIS)

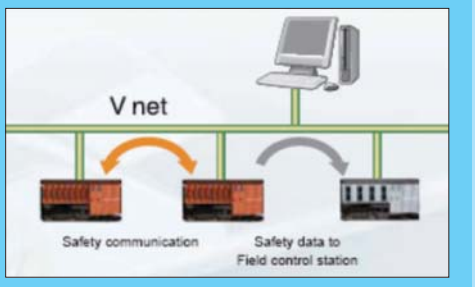
By Herat Shah
Dept. Manager, Safety Solutions Dept.

Launched almost three years back, ProSafe RS is presently selected for more than 300 prestigious projects world-wide. ProSafe RS is an obvious choice for our valued customers who do not want only SIL 3 system with high Safety and unprecedented Availability, but, also insist for seamless DCS – SIS Integration.

Demands from industries are growing day by day and ensuring Safety and Availability with extreme ease in Operation and Maintenance of plant with truly enhancing the Plant Efficiency is of paramount importance. Middle East projects are an eye opener to world with its high capacity and complexity of plants and process. Yokogawa solution with world class CENTUM CS-3000 DCS and In-house Integrated ProSafe RS SIS makes the perfect and proven solution for these demands which can be authenticated as 30% of Field IOs from world-wide installed base of ProSafe RS pertaining to only Middle East Projects!

One Network, One Window, One Solution

ProSafe-RS has been designed to connect directly onto the same V net/IP, the control network of CS-3000. No gateway or interface hardware is required for data exchange between SIS and DCS functions.



With the tight integration between DCS and ESD, the operator has access to all plant information via one single window on a CS-3000 HMI station. Operators can predict more rapidly which process conditions are likely to reach emergency levels due to this integrated information. These advantages will improve the overall plant safety. Since operators can perform Safety Monitoring in an Operation and Monitoring environment that they are already familiar with, overall plant safety is greatly improved.

ProSafe RS : Recently secured prestigious ESD / FGS / BMS Projects in Middle East

- GASCO – Habshan I&CS Upgrade and New Liquid Sulphur Sump – UAE
- Ma'aden (Saudi Arabian Mining Co.) – Phosphate Project (the world's largest single-train ammonia plant)
- Saudi Aramco – Ras Tanura DHT / SRU
- Saudi Aramco – Nuayym GOSP
- Petrokemya – PVC Train C and Paste – Saudi Arabia
- SASREF – USLD – Saudi Arabia
- Enppi – Gupco July 10 Offshore Platform - Egypt
- IGAT 5 and Fajr Pipeline – Iran
- Sirri Island Gas Gathering and NGL Recovery – Iran
- Abadan Refinery Renovation Project Phase 3 – Iran
- Qatar Petroleum – New Condensate and Power distribution at Halul Island

Need more information on Yokogawa products?

Become a Yokogawa Plus member

Yokogawa Plus is an online members' page for current or prospective users of the CENTUM series production control systems, ProSafe-RS safety instrumentation system, Exa series solution-based packages, STARDOM network-based control systems or PRM plant asset management. Information restricted to registered users such as product specifications and technical documents can be downloaded. Members can get comprehensive review of Yokogawa's production systems and solutions by logging in to the Yokogawa Plus once.

To sign-up please go to the following address:
https://plus.yokogawa.co.jp/Membership/

Technology Innovations Fair & Seminar

By Namrata Merchant
Group Leader, Marketing Communications Group

The first of its kind, Yokogawa Technology Innovations Fair was held in Saudi Arabia (KSA) on March 4-5 in Dhahran. The event was part of the grand inauguration ceremony for the new facilities of Yokogawa Saudi Arabia (Y-KSA).

The Technology Fair was a huge success and attracted attention and enthusiasm from many customers. The Fair showcased Yokogawa products, expert engineering capabilities and future vision.

PRESENT ZONE:
A walkthrough was created to showcase Yokogawa History, Engineering Capability, Human Treasures Development and demonstration of the VigilantPlant concept. The Command Center was set-up to show integration of Production Control, Asset Excellence, Production Excellence & SCADA Solutions. The SEE, KNOW & ACT was truly evident. Additionally, the true integration of HART, Profibus, FF and Wireless solution to Asset Management System (PRM) was displayed.

Yokogawa demonstrated to its customers that it is not only an Automation Vendor, but also has expertise in providing solutions in the areas of Life Science, Avionics and Automatic Test Equipments.

The Technology Fair was the right forum where Yokogawa could share its future vision and the areas that the R&D division is working on.

FUTURE ZONE:
The future zone provided an opportunity to see cutting-edge technologies being developed by Yokogawa.

The following key technologies that Yokogawa is currently working were demonstrated.

- Field-ubiquitous Computing, which includes IP field network and tracking simulator
- Micro Technology (Semi-conductors)
- Photonics Technology

SEMINARS:
The seminars highlighted the successful teamwork between Yokogawa and its customers in the Kingdom of Saudi Arabia. Speakers were from the top industry players.

Attendees gained useful information of win-win collaboration between Yokogawa and its valued customers and how Yokogawa's automation solutions benefit the end users to achieve business and operational excellence.

It also provided a platform for interaction between existing and future users of Process Control Systems from the oil & gas, refining, petrochemical, chemical and other industries.

Dates to remember:

November 3-6 2008
Visit Yokogawa at the largest oil and gas events in the Middle East at ADIPEC 2008, Abu Dhabi, UAE.
Stand H11/18, near the entrance of hall 11 & 12.

November 17-19 2008
Visit Yokogawa at the SAOGE 2008 (Saudi Arabia International Oil & Gas Conference & Exhibition), Dammam.
Stand 332

Yokogawa looks forward to hearing from all our customers! To voice your comments, please feel free to write to us at:

feedback@ml.bh.yokogawa.com

Origami–Traditional Japanese Art and Contemporary Science & Technology

By Kokichi Honda
Executive Advisor to President

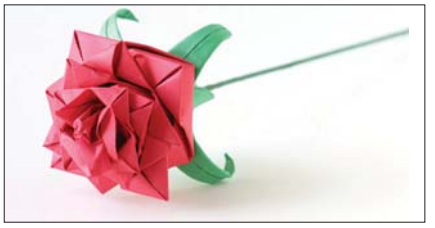
Tradition: Origami (from ori meaning "folding", and kami meaning "paper") is the age-old Japanese art of paper folding. The goal of this art is to create a given result using geometric folds and crease patterns preferably without the use of gluing or cutting medium. Origami is not simply just an art, but also fosters analogical reasoning and cooperative, math, and cognitive skills. "Origami" refers to all types of paper folding, even those of non-Asian origin.

Origami uses only a small number of different folds, but they can be combined in a variety of ways to make intricate designs. In general, these designs begin with a square sheet of paper whose sides may be different colors. Contrary to most popular belief, traditional Japanese origami, which has been practiced since the Edo era (1603-1867), has often been less strict about these conventions, sometimes cutting the paper during the creation of the design.

Science: With popularity, a new generation of origami creators has experimented with crinkling techniques and smooth-flowing designs used in creating realistic masks, animals, and other traditionally artistic themes [Fig 1]. If you can fold a paper as frequent as possible, it would be ideal. But, the reality is that, if you fold a paper into two 26 times, the accumulated thickness would be more than the height of Mt. Fuji. Various physical limits of the paper may cause unstable crease or self-weight to hinder proper forming, while the paper characteristics also enables elastic "Origami-spring". These difficulties are the subject of computer analysis in the field of information science. International conference of "Origami in Science, Mathematics, and Education (OSEM)" was already held four times.

Technology: Could Origami stay with a hobby and the subject of information science? Modern folding method called "Miura-ori" is applied to the expandable solar cell for man-made satellite or map and to the design of thin and robust aluminum can. Folding of robot arms, bending of pipes, folding of protein and the design of cardboard box are also related to Origami. OSEM conferences saw a presentation of Origami-design of DNA and a discussion on the application to nanotechnology.

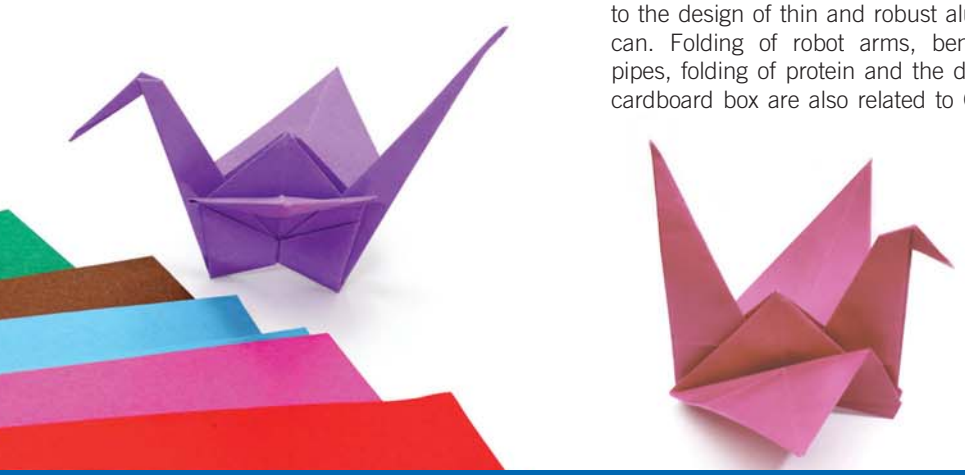
But in the end: It is still the simple art of paper-folding, open to anyone with a bit of patience and a lot of paper and time on their hands. [Fig.2 & 3]



[Fig 1] An intricate origami rose

[Fig 2] Origami horses

[Fig 3] One of the most famous origami designs is the Japanese crane. The crane is auspicious in Japanese culture. Legend says that anyone who folds one thousand paper cranes will have their heart's desire come true.



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