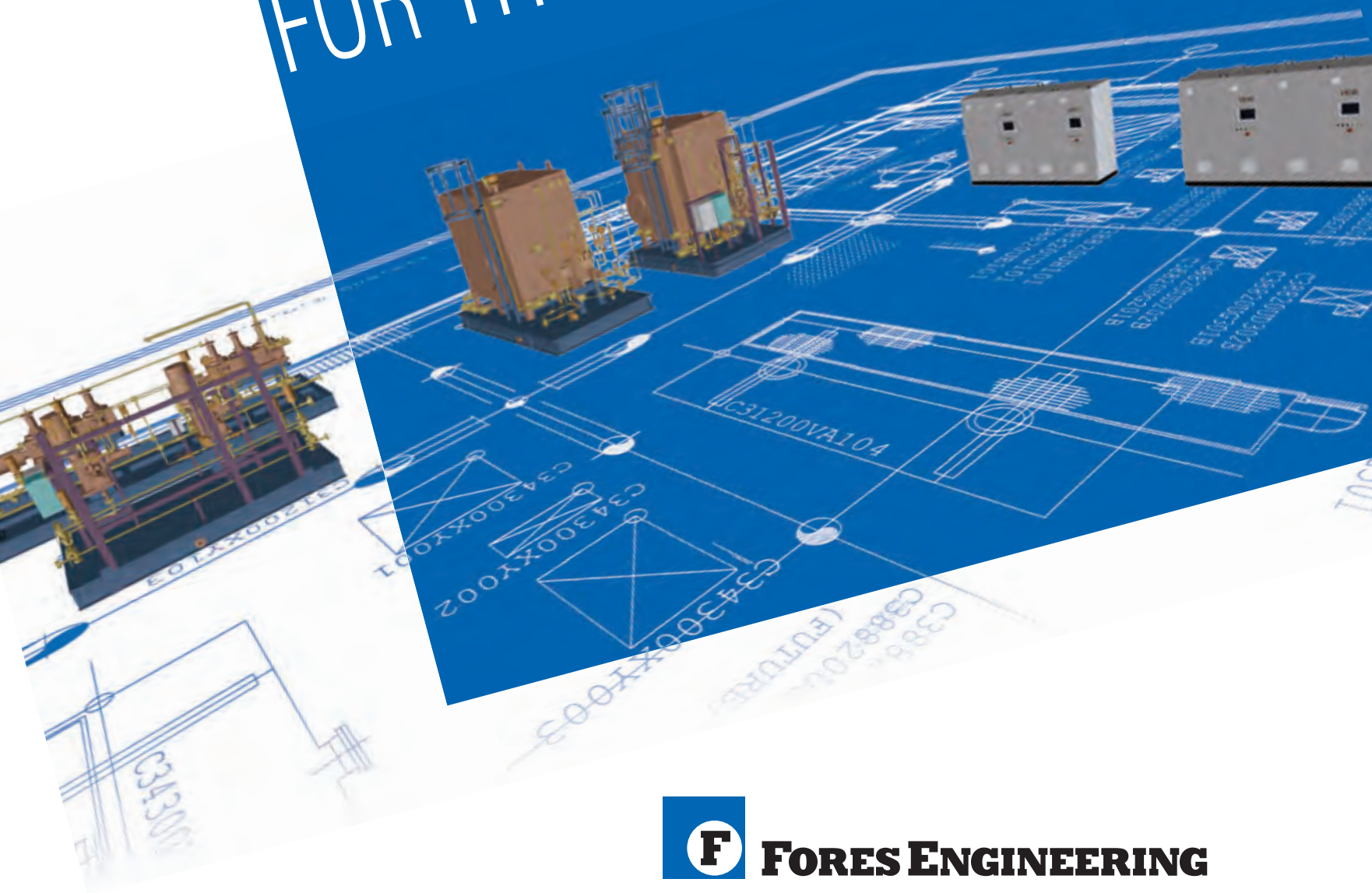


# ENGINEERING INTEGRATION CONSTRUCTION AND SERVICES SYSTEMS FOR THE OIL&GAS



**FORES ENGINEERING**



**ROSETTI MARINO**  
*Group of Companies*

# AUTOMATION

Fores Engineering designs, procures, constructs and supplies a complete array of customized **Control and Safety Systems** including:  
**SIS** – Safety Instrumented System SIL rated according IEC 61508 / 61511 standards

from initial sketch to the delivered Complete Integrated System  
**Fores is Your Turn-key Solution Partner for your Automation needs**

- > **ESD** – Emergency Shutdown System
- > **HIPPS** – High Integrity Pressure Protection System
- > **F&G / FAS** – Fire & Gas System / Fire Alarm System (addressable and conventional type)
- > **FGD** – Fire & Gas Detectors and Visual / Sound Alerting Devices (addressable and conventional type)
- > **FFS** – Fire Fighting and Extinguishing System
- > **MSP / ARP** – Manual Shutdown Panel / Alarm Repetition Panel
- > **BMS** – Burner Management System
- PCS / DCS** – Process Control System / Distributed Control System
- ICSS** – Integrated Control and Safety System
- ECS / PMS** – Electrical Control System / Power Management System
- IT** – Information technology (Networks, Servers, ENG / OS stations, Videowall, Touchscreen)
- HMI** – Human Machine Interface
- RTU / SCADA** – Remote Terminal Unit / Supervisory Control and Data Acquisition Systems
- AMADAS** – Analyzer Management and DATA Acquisition System
- Conditioning and Vibration Monitoring System**
- PLDS** – Pipeline Leak Detection System
- UCP** – Unit Control Panel PLC based
- HVAC Control System**



Fores Engineering offers its Customers a wide range of **Technical Features and Services:**

Indoor Safe Area or Outdoor Hazardous Area Atex System Cabinets Installation

Integration of different systems from all Major Manufacturers available in the market including for example: Siemens, Autronica, Schneider (Modicon, Invensys, Foxboro), ABB, Emerson, GE, Bentley Nevada, Rockwell, HIMA, Yokogawa, Honeywell

Complete range of possible Single or Redundant Communication Network

With or without UPS / Solar Panel

In synergy with our internal Telecom & Security Team, Automation can be perfectly Integrated with all Telecom & Security Systems / Equipment

Field Detailed Engineering – HSE / Process detailed engineering:  
 Cause & Effect, Logigrams, F&G Layouts, Plant Safety and Firefighting Revamping Study, Hazop, SIL Assessment – Greenfield / Brownfield Assets Integration

**360° Project Follow-up Design, Procurement, Configuration, Construction, Integration, Test, Commissioning, Startup and After Sales Services**

**Global 24/7 Commissioning, Maintenance, Consultant Technical Service whenever you need**

Fores System Integrator is the perfect partner for top-quality, safe, reliable and high-performance Integrated Control and Safety System Solution delivered on schedule for the following reasons:

### EXPERIENCE

- > Almost 25 years of experience with more than 250 automation systems delivered worldwide
- > Design Team with detailed Oil & Gas Process Knowledge; that is a key point that allow Proactive Design with Customer Cooperation through specific project documents critical analysis - best Customer Problem Solving - Identify and analyze multiple solutions for best customer satisfaction - Advise effective solutions
- > Experience across multiple oil & gas assets, with different EPC Contractor, different Oil & Gas End User Company, with different System Manufacturer, worldwide: that is another key point for top quality Customer Service
- > Design team with field Commissioning and Startup experience: Same team during design-commissioning-startup for best performance and Customer schedule compliance
- > Revamping-Migrations: target zero spurious shutdown / minimum shutdown time
- > Design for reliability and easy maintenance in extreme harsh conditions that could be found in oil & gas industry (offshore and onshore)

### KNOWLEDGE

- > Team of internal expert engineers and technician master degree graduated in Automation systems, experienced with different System Manufacturer
- > Team of TUV certified Functional Safety Engineers for SIL rated safety systems design according IEC 61508 / 61511 standards
- > Design and supply in accordance with client specifications, international standards (such as IEC, NFPA, ATEX, Naval Rules) and local regulation

### ENGINEERING DRIVEN – VENDOR NEUTRAL

- > Strong vendor relationships – Qualified System Integrator of all Main Control and Safety Systems Manufacturers available in the market – Oil & Gas Market Products Knowledge
- > Design Engineering driven and vendor neutral: best architecture based upon project characteristics that allow keeping Customer Installation/Commissioning/Startup Costs @minimum

## SIS/ESD-F&G-FAS

A fire accident is the worst scenario for any Oil & Gas asset. A F&G detection system, working in synergy with the ESD system is the most important and critical system in any oil & gas asset, so they require a high level of expertise, a high level of knowledge and experience of every equipment involved and the environment / asset where it has to operate.

A F&G detection system shall be available, reliable providing an early detection and guarantee the continuous plant monitor in order to initiate appropriate actions in case of hazardous conditions, either directly through systems like the Firefighting system for fire suppression or indirectly through the ESD system by mitigating the unwanted effects of potentially destructive fires by initiating shutdown sequences. This is valid considering a F&G system as a whole system

together with integrated F&G detectors, and alerting devices that as well shall be available, reliable and well positioned according the asset shape and type of detection technology involved.

Especially for these systems (F&G / ESD /SIS), more than other, is extremely important that the design is done according standards by a qualified and certified team that is not only expert in the system itself and his technology but also has got also a deep knowledge of the Oil & Gas plant and experience in field installation, commissioning and startup.

Fores is the perfect Partner for the supply of these critical Safety Systems, witnessed by all major Oil & Companies that relied with confidence to our **Automation Experienced TUV FS Eng.** for the supply of F&G / ESD systems in their assets (more than 150 delivered worldwide).



## SIS/ESD-F&G-FAS

Fores F&G / ESD supplies and services include not only the system itself designed and constructed according IEC 61508/61511 with the SIL level required; Fores Automation team in fact can also cooperate with Customer for related engineering that, as highlighted, is as important as a proper system design:

- F&G Field Detailed Engineering
- HSE / Process detailed engineering
- Cause & Effect, Logigrams
- F&G Datasheet and follow-up
- F&G Layouts and F&G 3D positioning
- Plant Safety and Firefighting Revamping Study
- Hazop, SIL Assessment
- Greenfield / Brownfield Assets Integration

Fores is Official Non-Exclusive Distributor of Autronica Maritime Fire Detection & Safety Systems for Oil & Gas Industry Market since 2005.

Wide range of **Technical Features / Services** available for Customers:

- Different Configurations: conventional or addressable or mixed solutions integrated together, SIL rated up to SIL3
- Different type of F&G detectors / Alerting Devices from all Major manufacturers available in the market
- Seamless integration with Plant Control System PCS / DCS , increasing operator efficiency (thus minimizing downtime and operational risks) and minimizing project costs in the short run and reducing plant maintenance and shutdown costs during asset's life.



## PCS/DCS

For many years, Fores has been supplying the process control industry with innovative and technologically advanced integrated products and systems for main Oil & Gas Companies and EPC contractors worldwide.

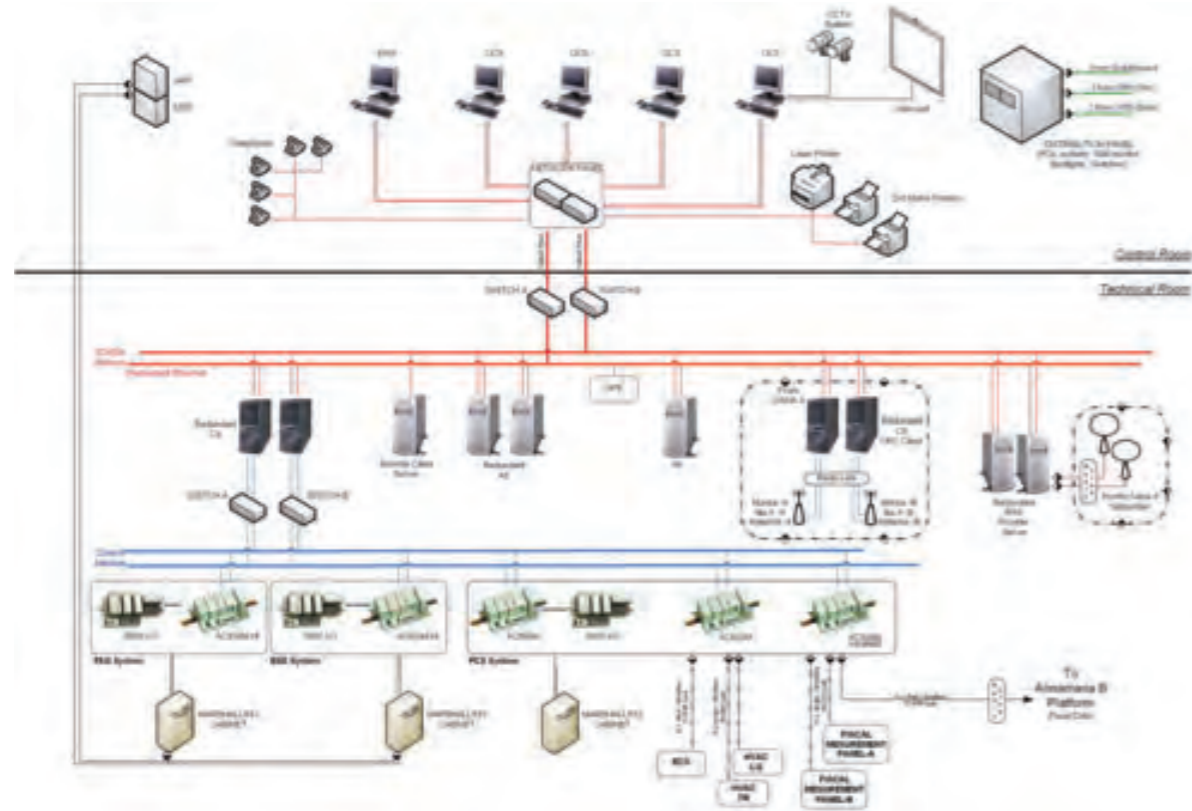
We design and configure process control solutions, both simple and complex, across a broad range of industries such as Oil & Gas, Energy, Chemical and Power plant.

With 25 years of field experience, offshore, onshore, floating coupled with extensive Oil & Gas Process knowledge, Fores is able to boost overall plant productivity and efficiency by designing, configuring, constructing and supplying Cost Effective Process Control System & Solutions perfectly

integrated with all essential and vital plant systems such as Safety systems, Packages Control panels and Electrical systems.

### Engineering Driven / Vendor Neutral

Whether Your application involves extracting gas or crude oil from on/off-shore reservoirs, transporting gas or crude oil to refineries or perhaps refining gas or crude oil to manufacture consumer petroleum products such as petrol, diesel or methane, Fores have the expertise and technologies to meet Your needs by selecting the best equipment from all manufacturers available in the market.



## PCS/DCS

Fores Process Control Solutions like all other Fores supplies are Turnkey supplies: we take care of your requirements / problems and we provide customized solutions taking care of each phase in the supply chain:

- Engineering
- Procurement
- Construction
- Configuration
- Integration
- Extensive in-house 100% tests
- Worldwide Delivery
- Commissioning & Start-up
- After Sales Services

Wide range of **Technical Features / Services** available for Customers:

- Indoor Safe Area or Outdoor Hazardous Area Atex System Cabinets Installation
- With or without UPS / Solar Panel
- Seamless integration with Plant Safety Systems PSD / ESD / F&G /HIPPS, increasing operator efficiency (thus minimizing downtime and operational risks) and minimizing project costs in the short run and reducing plant maintenance and shutdown costs during asset's life.



## ICSS Integrated Control & Safety System

Integration of different systems from all Major Manufacturers available in the market including for example: Siemens, Atronica, Schneider (Modicon, Invensys, Foxboro), ABB, Emerson, GE, Bentley Nevada, Rockwell, HIMA, Yokogawa, Honeywell.

**Design Engineering Driven / Vendor Neutral:** best architecture based upon project characteristics that allow keeping Customer Installation/Commissioning/Startup Costs @minimum.

Strong vendor relationships – Qualified System Integrator of all Main Control and Safety Systems Manufacturers available in the market – Oil & Gas Market Products Knowledge.

AUTOMATION



## ICSS Integrated Control & Safety System



AUTOMATION

## RTU/SCADA

Since the early years of foundation, Fores Engineering has dedicated strategic and high skilled resources to the implementation of **SCADA controls and RTU based control networks** with the main objective to propose to our clients the best "fit for purpose" solution for centralized management of Industrial plants such as Chemical, Food, Oil & Gas and power plants.

Starting from the development of PCS supervisory system up to software based SCADA, Fores Engineering best practice and experienced approach to analysis and displaying data has demonstrated to be a valid support in helping operators to improve plant process efficiency.



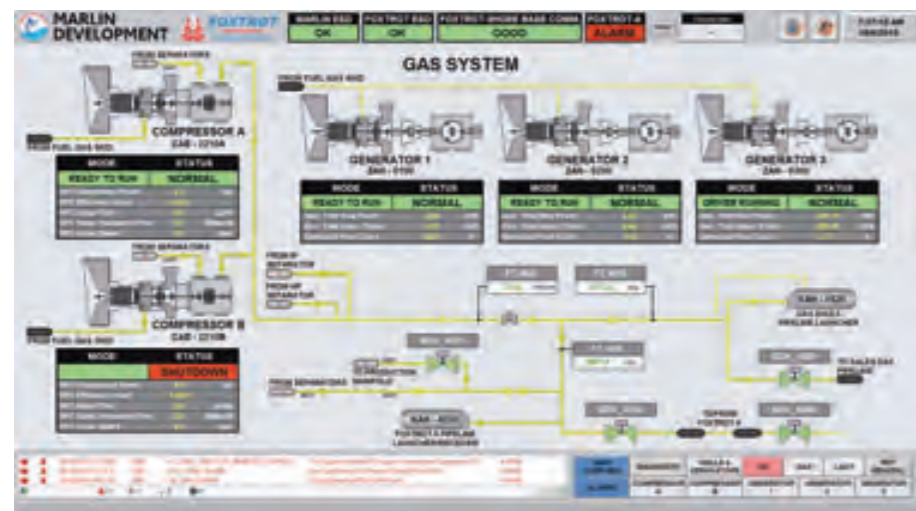
The experience reached in the supply of Data Management System (via Fiber Optic, Radio or Satellite) gives us strength to the supply of fully designed, engineered, assembled and tested SCADA - RTU - Data exchange integrated solution with several plant wide SCADA control station and multiple RTU data gathering nodes.

### Solution Oriented / Vendor Neutral

Fores SCADA and RTU Solutions, like all other supplies, are Turnkey based, covering the whole supply chain of product delivery, improving efficiency, increasing profitability and enhancing safety compliance by optimizing key business processes - from design and planning to operations.

Wide range of **Technical Features/ Services/supply** available for Customers:

- High complexity Data Network design
- Integration of different manufacturer subsystems
- SIL rated solution(s)
- Path transmission study
- Design of graphics based on plant study, P&Id or PFD
- Improvement of Cause/Effects table
- Alarm and Diagnostic
- Production and performance report



## HIPPS

HIPPS system is a specific application of SIS (Safety Instrumented System) and is used in the Oil & Gas industry in order to provide protection for downstream equipment against overpressure or unsafe conditions coming from upstream.

For an HIPPS system is extremely important that the design is done according standards by a qualified and certified team that is not only expert in the system itself and his technology but has also a deep multidisciplinary knowledge of the Oil & Gas plant and experience in field installation, commissioning and startup.

Fores is the perfect Partner for the supply of these critical Safety Systems, witnessed by all major Oil & Companies that relied with confidence to our Experienced TUV FS Eng. Team for the supply of HIPPS systems in their assets.

Our advantages against competitors is the complete design and construction of the entire HIPPS package according IEC 61508/61511 with the SIL level required (up to SIL4) by perfectly integrate each equipment part of the HIPPS system:

- Initiators: Safety SIL rated Pressure Transmitters
- Logic Solver: Safety SIL rated Controller
- Final Elements: Safety SIL rated Valves
- Piping and Skid structure
- Network and Power supplies
- Partial Stroke test facility
- All relevant detailed safety calculation and certification.



# TELECOM AND SECURITY

Fores Engineering designs, procures, constructs and supplies a complete array of customized Telecom and Security Systems fully integrated each other and with Asset ICSS, including:

## Communication Core

- > Carrier Ethernet Network
- > Fiber Optic Backbone

## Voice and Data Systems

- > LAN / WAN System
- > VoIP
- > PBX – Telephone System

## Radio System

- > Microwave System
- > VSat
- > Tetra / DMR
- > Radio System UHF / VHF
- > MF/HF Radio
- > NDB System

## Security & Safety System

- > CCTV System
- > PAGA – Public Address General Alarm System
- > GMDSS System
- > ACS – Access Control System
- > IDS – Intrusion Detection System
- > Weather System

## Entertainment

from initial sketch to the delivered Complete Integrated Telecom & Security System  
**Fores is Your Turn-key Solution Partner for your Communication & Security needs**



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**Global 24/7 Commissioning, Maintenance, Consultant Technical Service whenever you need**

Fores Engineering offers its Customers a wide range of **Technical Features and Services:**

Indoor Safe Area or Outdoor Hazardous Area Atex System Cabinets Installation

Different leading equipment's manufacturers technological partners including for example:

Lenel, Motorola, Cisco, Vaisala, Gai-Tronics, Juniper, Cassidian, Moxa, Bosh, Synetics, Sailor, At&t, Pelko, Nokia, Senstar, OTN, Advantec, SAC, Honeywell

Integration of different systems from different Manufacturers

With or without Electrical Power Distribution / UPS / Solar Panel

With or without UPS / Solar Panel

Tower / Pole

With or without Shelter

With or without Solar Power System

In synergy with our internal Automation Team, Telecom & Security Systems / Equipment can be perfectly Integrated with Customer Asset ICSS

Field Detailed Engineering – Telecom & Security Architecture analysis and optimization – Greenfield / Brownfield Assets Integration

Sound Coverage Design – Radio Coverage Design

Fores is Official Non-Exclusive Distributor of Lenel UTC Fire & Security

Fores System Integrator is the perfect partner for top-quality, reliable and high-performance Fully Integrated Telecom and Security System Solution delivered on schedule for the following reasons:

### CAPABILITY

> Fores does not supply only single individual Telecom equipment as stand-alone / single products like every other competitor but, instead, Fores is also able to guarantee State of The Art Integration among all Telecom & Security systems in order to maximize performance and flexibility, that are the key points required for a Telecom & Security System improving Customer Productivity: Fores sells Integrated Solutions.

> We are proud to have within our internal Telecom & Security Design Team very experienced telecom technicians gathered from major leading players in telecom systems supplies with 30 years' experience in integrated Telecom & Security Systems Design and Commissioning worldwide

### EXPERIENCE

> Our experience ranges from one million project (e.g. Telecom Systems part of other Fores products like Shelter E&I Modules) to more complex several millions Integrated mega project like, for example, latest Touatgaz (Technicas Reunidas, Algeria, over 8MIn€) or Wasit (Saudi Aramco, Kingdom of Saudi Arabia, over 6 MIn€)

> Design Team with detailed Oil & Gas Process Knowledge: that is a key point that allow Proactive Design with Customer Cooperation through specific project documents critical analysis - best Customer Problem Solving - Identify and analyze multiple solutions for best customer satisfaction - Advise effective solutions

> Experience across multiple oil & gas assets, with different EPC Contractor, different Oil & Gas End User Company, with different System Manufacturer, worldwide: that is another key point for top quality Customer Service

> Design team with field Commissioning and Startup experience: Same team during design-commissioning-startup for best performance and Customer schedule compliance

> Design for reliability and easy maintenance in extreme harsh conditions that could be found in oil & gas industry (offshore and onshore)

### KNOWLEDGE

> Team of internal expert engineers and technician master degree graduated in Telecom systems, experienced with different System Manufacturer

> Design and supply in accordance with client specifications, international standards (such as IEC, NFPA, ATEX, Naval Rules) and local regulation

### ENGINEERING DRIVEN – VENDOR NEUTRAL

> Strong vendor relationships – Qualified System Integrator of all Main Control and Safety Systems Manufacturers available in the market – Oil & Gas Market Products Knowledge

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