Control Systems General Catalogue

adak vision

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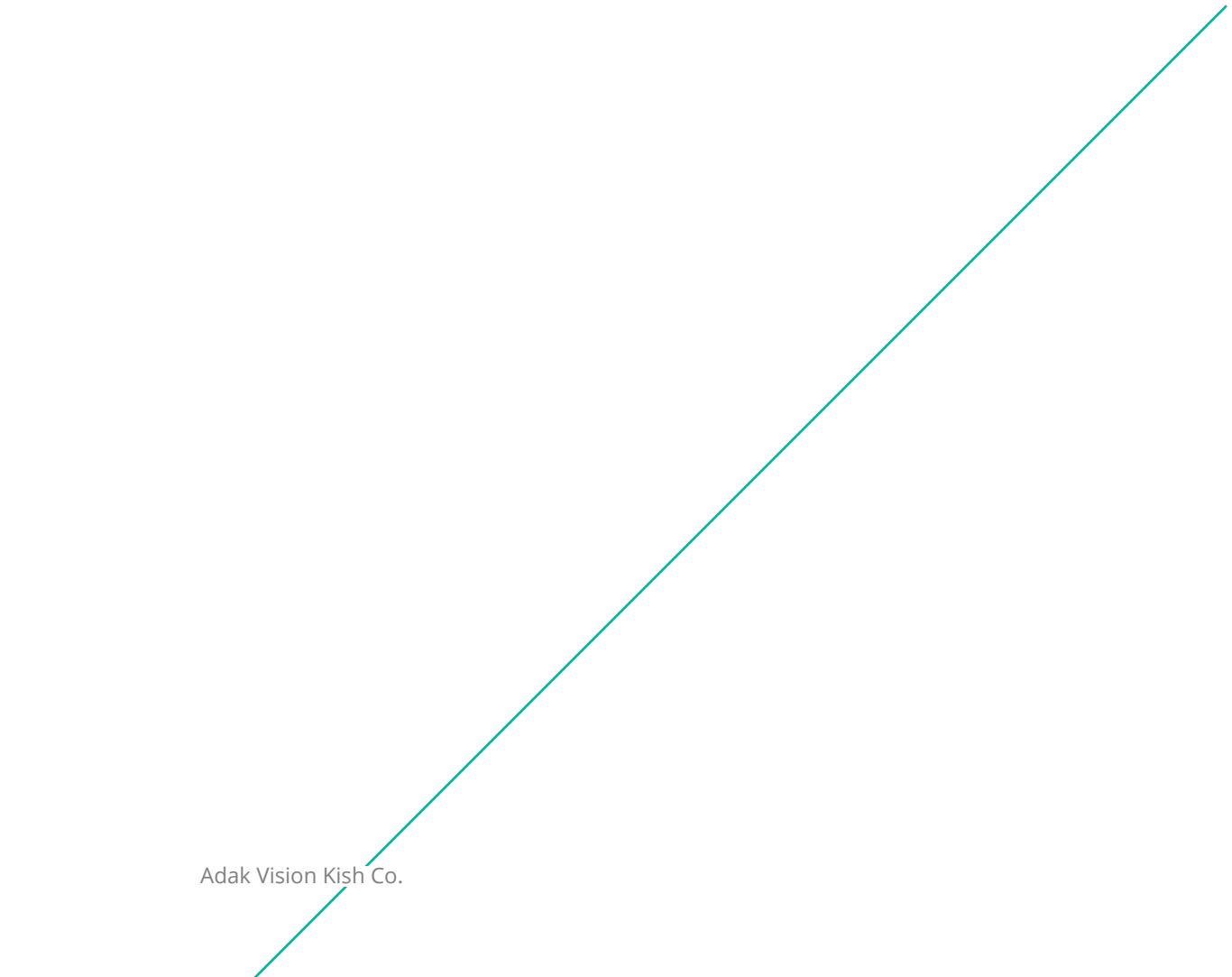
1. About Us

Adak is a privately owned stock and one of the leading EPC companies in the nation, active in engineering services, supply, and provision of extensive selection of industrial valve, automation, control and instrumentation equipment and supplementary accessories. Adak vision relies on its experience in presenting several projects including technical engineering services, designing, manufacturing, installation, testing and commissioning projects in the field of oil, gas and petrochemical industries, steel making plants, power plants, water and wastewater treatment, railway industries, cement industries etc.


GLOBAL MAP
Application Form

1.1. Our Mission, Vision, and Value

Adak's Mission is to provide solutions for various industries mentioned before and provide extensive engineering services, procurement, construction installation and commissioning for its clients, relying on more than 2 decades experience of its management and engineering team. The company has taken efficient steps in development of national economy and industry through the experience of its experts and applying the state-of-the-art technology. This is what we call our Vision! To become one of the main references in mentioned fields in the region as a knowledge-based company. Last but not least our Value is the precious human resource which is made of most expert individuals and also the trust of our clients which have shaped through these years that we won't exchange it with anything in this world.



2. Control Systems

Specification Procurement
We specialize in control systems and have experience at producing detailed system specifications, evaluating vendor bids, procuring, and providing client representation at factory acceptance testing and at final site acceptance testing.

Systems Integration
Systems integration is part of our core. We can evaluate your existing control system, make performance recommendations, provide complete detailed design for system additions, provide migration plans for obsolescence, design industrial communication networks, provide full integration from the primary devices at the plant floor to information at management levels.
Working with our clients as a team is important in achieving top results. We have an excellent reputation for having good working relationships with our clients, and understanding their needs. It is this and our continuous thirst for knowledge that keeps us on top.

Our personnel are very well equipped to provide best in class solutions. We have experience with various control system documentation that assist in working towards and expressing design stages from conception to implementation.

- System Architecture Drawings
- Shutdown Keys
- SAMA Drawings
- Testing Procedures
- Construction and Execution Document
- Communication Network Drawing
- Logic Diagrams
- Control Diagrams
- Simulation Programs
- Commissioning Procedures


SIEMENS
SIMATIC
S7-1200
RUN / STOP
ERROR
MAINT
DI a
DI b
CPU 1214C
DC/DC/RLY
AQ
DQ a
DQ b
DIAG
SM 1223
DC/DC

2.1. PLC (Programmable Logic Controller)

AdakVision provides integration and programming for various automation & process control equipment. Our extensive technical knowledge in the industry allows us to assist you in programmable logic controllers (PLC), human machine interfaces (HMI), motion controllers, and other machine controllers.

Dedicated to providing our clients the latest industry solutions, our team is experienced with Allen-Bradley®, Siemens, Schneider-Electric (Modicon), ABB, Omron and many others.

Our technical knowledge of PLC's and industrial devices including sensors, transducers and actuators, allows us to automate your machinery and processes in the most efficient way possible. AdakVision completes successful new PLC installations and PLC system upgrades in a wide variety of industries every year.

2.2. DCS (Distributed Control System)

A distributed control system (DCS) refers to a control system usually of a manufacturing system, process or any kind of dynamic system, in which the controller elements are not central in location (like the brain) but are distributed throughout the system with each component sub- system controlled by one or more controllers. The entire system of controllers is connected by networks for communication and monitoring.

Distributed control systems (DCSs) are dedicated systems used to control manufacturing processes that are continuous or batch-oriented, such as oil refining, petrochemicals, central station power generation, fertilizers, pharmaceuticals, food and beverage manufacturing, cement production, steelmaking, and papermaking.

Complementing its process control capabilities, AdakVision also offers expertise in Distributed Control Systems (DCS), designed to monitor and control distributed equipment across large, dynamic manufacturing and processing sites. AdakVision's DCS experience ranges from the reprogramming of small numbers of control loops, through to the design and implementation of entire control strategies, from the early stages of design through to implementation.

AdakVision designs and implements a wide range of DCS systems.
We provide a wide range of DCS services including the following:

- Performing FEED and feasibility studies
- Writing detailed design specifications for new and replacement DCS systems
- DCS system recommendations
- Design, installation & commissioning of DCS systems
- Reverse engineering services for legacy systems
- Legacy system support and migration
- IEC 61508, IEC 61511 & IEC 61513 compliant DCS systems
- Provision of DCS engineers for a day, week, year etc.
- DCS system modifications
- Project management
- DCS consultancy and support
- Service level agreements
- 24/7 call-out support

2.3. FCS (FieldBus Control System)

Foundation Fieldbus H1 level has been designed as a digital replacement of the 4 to 20mA standard in the process industries. Foundation Fieldbus is also a LAN (Local Area Network) for instruments used in both process and manufacturing automation with built-in capability to distribute the control application across the network. The physical wiring is also fully compatible with intrinsic safety (IS) or nonincendive wiring standards and may be used in hazardous, as well as general purpose areas. In hazardous areas standard explosionproofing or power limited concepts may be used, as well as IS concepts, offering greater cabling design flexibility.

Foundation Fieldbus (FF) features:

- Reduce field wiring costs.
- Intrinsic safety wiring option available to further reduce costs in hazardous environments.
- Same bus used for analog and discrete devices.
- Control (LAS) for the segment may reside in the field devices freeing up space in central controllers.
- Time stamping of control parameters performed in field devices and coupled to control data to optimize operating performance.
- Provides greater controllability and process information.
- Standardized function blocks, representing control and I/O; speed set up.
- Long bus length of 1900m (6,175 ft) and spurs up to 120m (390 ft) span most process systems.
- Supported by over 80% of the world's process instrumentation suppliers.

2.4. PMS

Power Management System (PMS) ensure reliable and stable energy supply for energy-intensive industries. The PMS balances energy demands with the available energy supply, thus preventing disturbances or even blackouts in operations. Furthermore, it enables a company to control its energy costs, to enhance safety, and to mitigate environmental and health impacts.

The Industrial PMS provides an integrated set of control, supervision and management functions for power generation, distribution and supply in industrial plants.

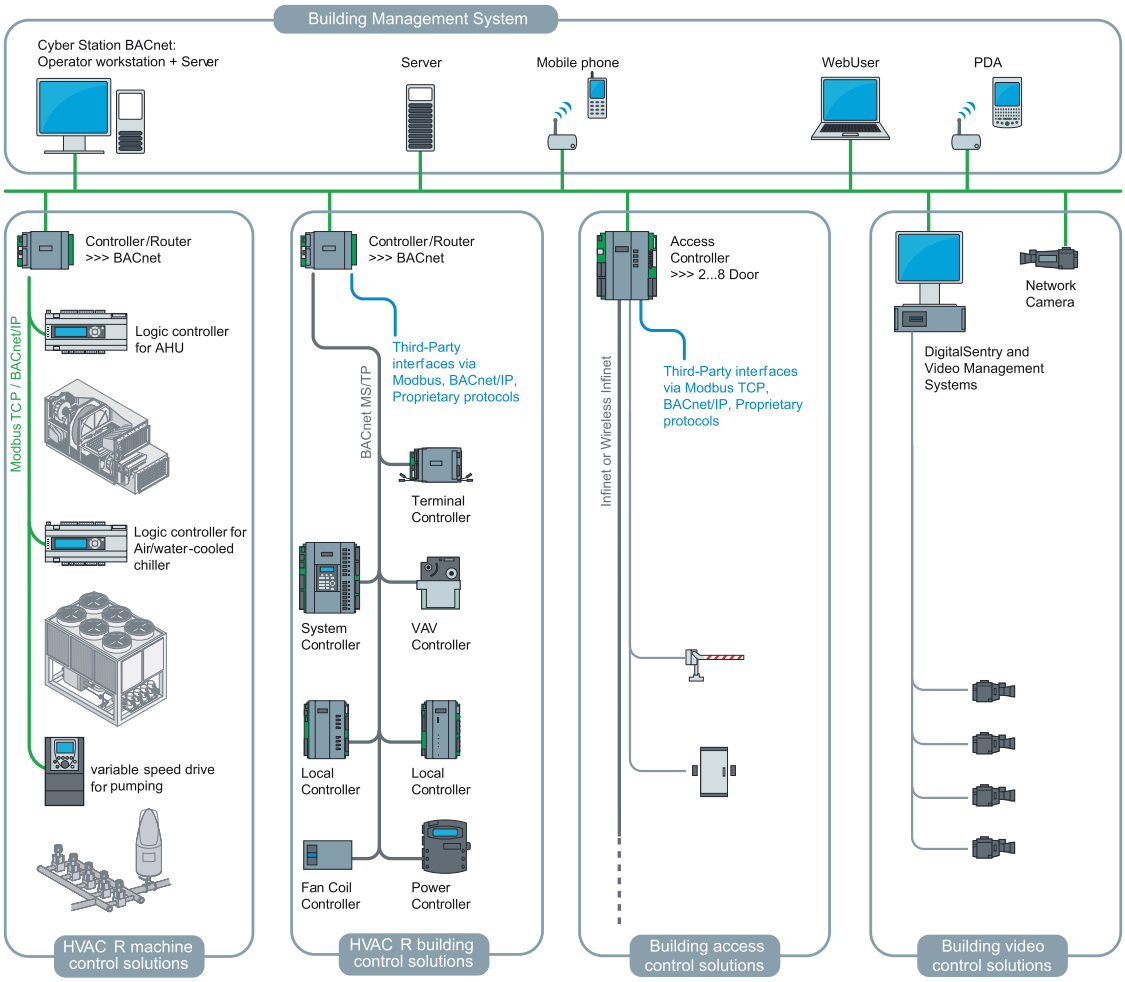
In this context, the Industrial PMS encompasses functions that are available in (sub)systems that are also known under alternative names, such as:

- Power Distribution Control System (PDCS)
- Load Management System (LMS)
- Electrical Network Monitoring & Control System (ENMCS)
- Electrical Control System (ECS)
- Electrical Integrated Control System (ELICS)
- Integrated Protection and Control System (IPCS)

2.5. BMS

A building management system (BMS) is a control system that can be used to monitor and manage the mechanical, electrical and electro-mechanical services in a facility. Such services can include power, heating, ventilation, air-conditioning, physical access control, pumping stations, elevators and lights. A very basic BMS consists of software, a server with a database and smart sensors connected to an Internet-capable network. Smart sensors around the building gather data and send it to the BMS, where it is stored in a database. If a sensor reports data that falls outside pre-defined conditions, the BMS will trigger an alarm. In a data center, for example, the BMS might trigger an alarm when the temperature in a server rack exceeds acceptable limits.

Depending on the system, BMS software can be installed as a standalone application or it can be integrated with other monitoring programs. More advanced BMSes can monitor and manage a wide range of building services across multiple platforms and protocols, providing facility administrators with a single, shared view of the facility's operations.


Building Management System
Cyber Station BACnet:
Operator workstation + Server
Server
Mobile phone
WebUser
PDA
Controller/Router
>>> BACnet
Modbus TCP / BACnet/IP
Logic controller
for AHU
Logic controller for
Air/water-cooled
chiller
variable speed drive
for pumping
HVAC R machine
control solutions
Controller/Router
>>> BACnet
Third-Party
interfaces via
Modbus, BACnet/IP,
Proprietary protocols
BACnet MS/TP
Terminal
Controller
System
Controller
VAV
Controller
Local
Controller
Local
Controller
Fan Coil
Controller
Power
Controller
HVAC R building
control solutions
Access
Controller
>>> 2...8 Door
Infinet or Wireless Infinet
Third-Party interfaces
via Modbus TCP,
BACnet/IP, Proprietary
protocols
Building access
control solutions
Network
Camera
DigitalSentry and
Video Management
Systems
Building video
control solutions

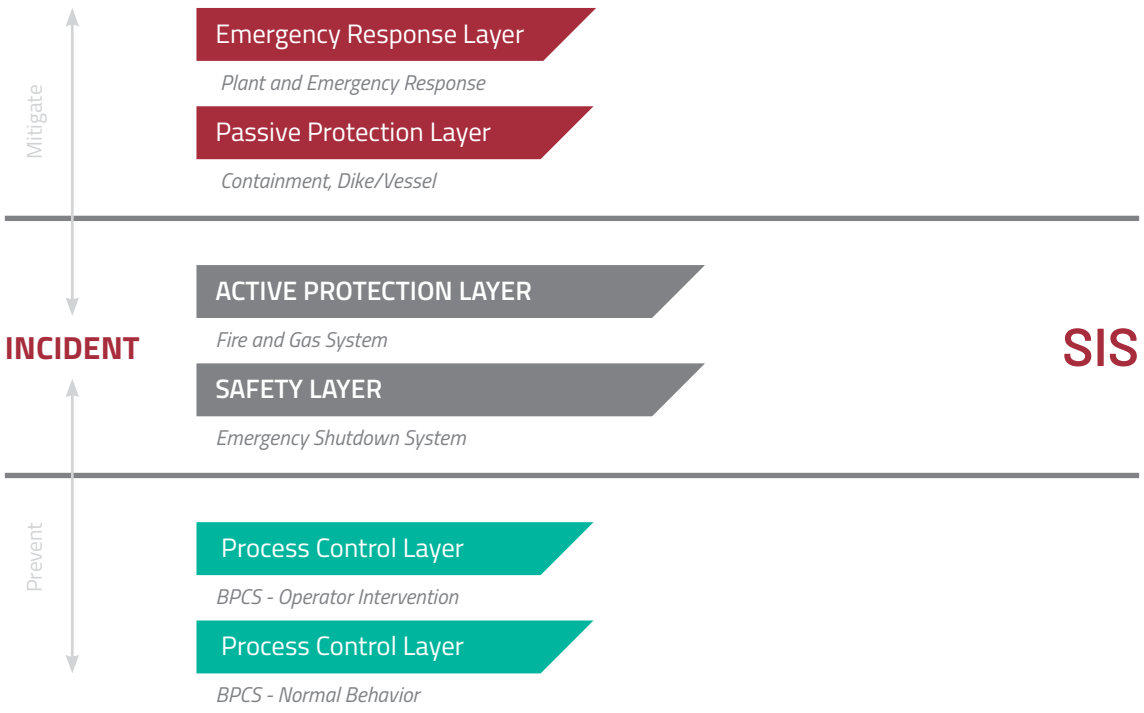
3. Safety Systems

AdakVision engineers design and implement control system to IEC 61508, IEC 61511, IEC 61513 and SIL 3 safety standards.
Our process control team specializes in providing IEC 61508 and IEC 3/61511 compliant Fire and Gas Systems (F&G) and Emergency Shutdown Systems (ESD), to safety critical industries such as Chemical, Nuclear, Oil and Gas, Power Generation and Utilities.

AdakVision has developed F&G and ESD solutions using a wide range of technologies including
- Siemens PCS7 F systems and Siemens S-7FH failsafe high integrity processors
- YOKOGAWA ProSafe and ProSafe-RS.
- HIMA ELOP II

The safety systems monitor and collect safety-related data. This critical information can be expanded into a management information system or database for reporting purposes.


ABB
A10
A11
UP 24VDC 200W
16DI 16DC
Input 24VDC
Output 24VDC 0.5A
CH-ERR1
CH-ERR2
CH-ERR3
CH-ERR4
PWR
ADDR x10H
ADDR x01H
F2
F3


Mitigate
Emergency Response Layer
Plant and Emergency Response
Passive Protection Layer
Containment, Dike/Vessel
INCIDENT
ACTIVE PROTECTION LAYER
Fire and Gas System
SAFETY LAYER
Emergency Shutdown System
SIS
Prevent
Process Control Layer
BPCS - Operator Intervention
Process Control Layer
BPCS - Normal Behavior

3.1. Emergency Shutdown Systems

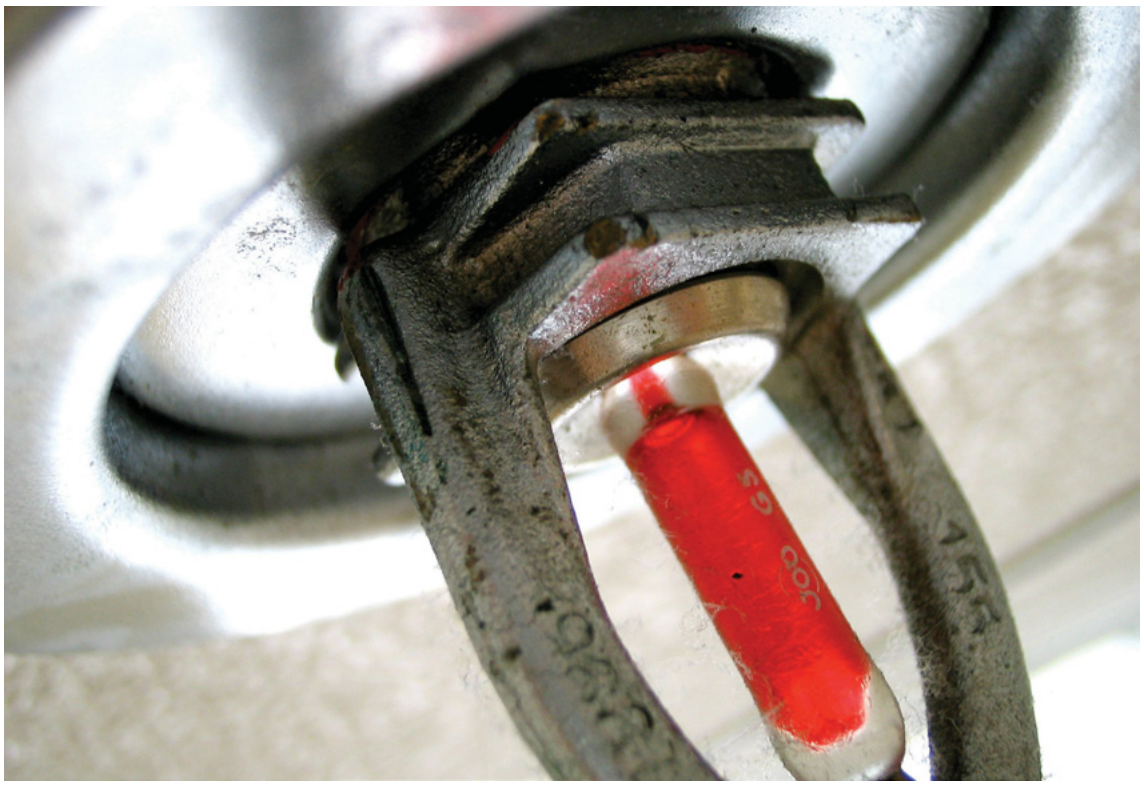
Emergency Shutdown Systems (ESD) are designed to minimize the consequences of hazardous conditions. AdakVision offers Emergency Shutdown Systems (ESD) to Safety Integrity Level (SIL) 3, in accordance with the IEC 61508, IEC 61511 and IEC 61513 international safety standards.

Emergency Shutdown Systems (ESD) are connected to various detectors including Fire & Gas Systems, and can be designed to perform a number of actions if a hazardous event occurs. AdakVision's team can design and build Emergency Shutdown Systems using a relay-based approach rather than a software-based approach.

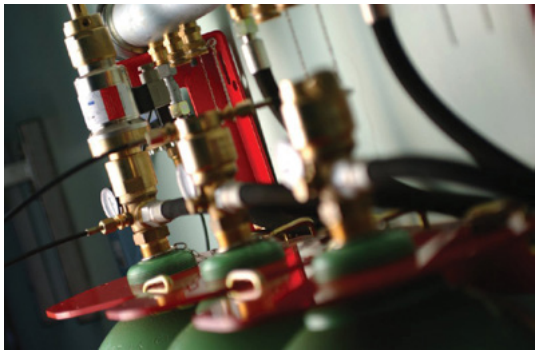
3.2. FGS (Fire & Gas Systems) (F&G)

Fire and Gas Systems (F&G) are designed to protect the plant personnel and plants from hazardous conditions. By monitoring areas where a fire or build-up of a potentially flammable environment may occur, the Fire and Gas Systems (F&G) can detect hazardous events, alert personnel and initiate timely actions in order to minimize the consequences of a critical event.

Connected to a number of detectors, Fire and Gas Systems (F&G) can also interface with an Emergency Shutdown System (ESD), to initiate the automatic shutdown of the plant should a hazardous event occur.



Fire and Gas Systems can monitor conditions and collect data e.g. flame, gas, smoke, temperature, rate of rise, and provide the facility to collate this data. AdakVision has experience in implementing F&G systems using client Cause and Effect diagrams.



4. SCADA

SCADA is an acronym for supervisory control and data acquisition, a computer system for gathering and analyzing real time data. SCADA systems are used to monitor and control a plant or equipment in industries such as telecommunications, water and waste control, energy, oil and gas refining and transportation. A SCADA system gathers information, such as where a leak on a pipeline has occurred, transfers the information back to a central site, alerting the home station that the leak has occurred, carrying out necessary analysis and control, such as determining if the leak is critical, and displaying the information in a logical and organized fashion. SCADA systems can be relatively simple, such as one that monitors environmental conditions of a small office building, or incredibly complex, such as a system that monitors all the activity in a nuclear power plant or the activity of a municipal water system.


Visits
375
Unique Visitors
286
Pages / Visit
2.53
Pageviews
947
Avg. Visit Duration
00:02:07
% New Visits
68.27%
Bounce Rate
45.13%

AdakVision's SCADA system integration services include:

- Performing FEED and feasibility studies
- Writing detailed design specifications for new and replacement SCADA systems
- SCADA system recommendations
- Design, installation & commissioning of SCADA systems
- Reverse engineering services for legacy systems
- Legacy system support and migration
- Provision of SCADA engineers for a day, week, year etc.
- SCADA modifications
- SCADA system validation services
- Project management
- SCADA consultancy
- SCADA training
- SCADA service level agreements
- 24/7 call-out support

AdakVision's SCADA engineers are experienced in the following systems:

- WinCC from Siemens
- VijeoCitect from Schneider-Electric

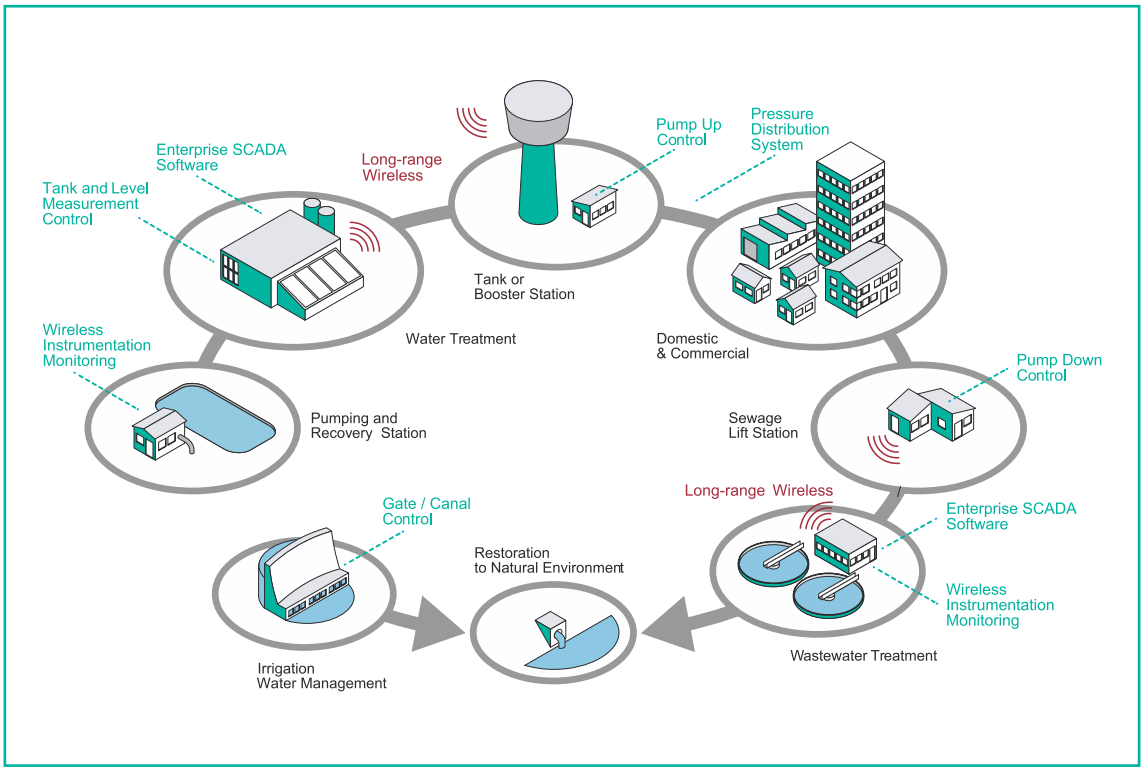
5. Telemetry

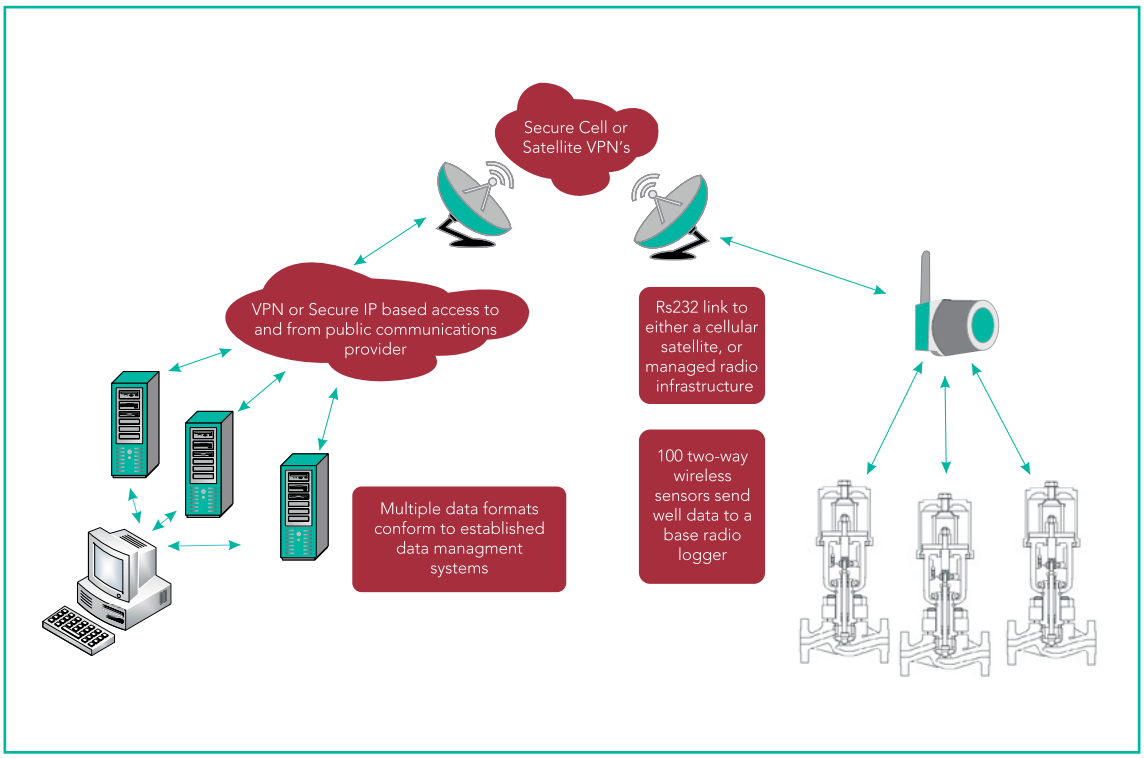
Adak Vision is proficient in the design and implementation of telemetry and wireless telemetry systems.
A telemetry system consists of both a remote site and a control site. The remote site wireless telemetry device contains systems and processes whose parameters are to be monitored. Ideally, this would consist of instruments that measure flow, pressure, temperature, etc. of a process. A wireless telemetry device at a control site is equipped with monitoring systems, which supervise conditions of power failure, water level, battery voltage, intrusion, etc. Chart recorders, alarm control panels, and data loggers are used for this supervision.

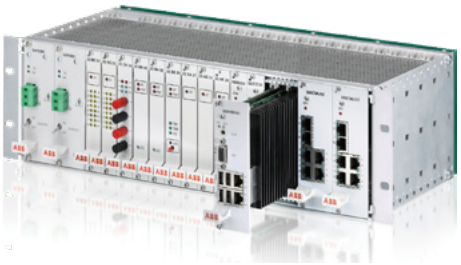
When a telemetry device, at the remote site, detects abnormal behavior in the digital/ analog inputs, it triggers a signal to the control site. The control site telemetry device then determines the action to be taken based on the signal it has received. A signal is sent back to the remote site with necessary control actions. The communication between the control site and the remote site is, many times, done by wireless medium.

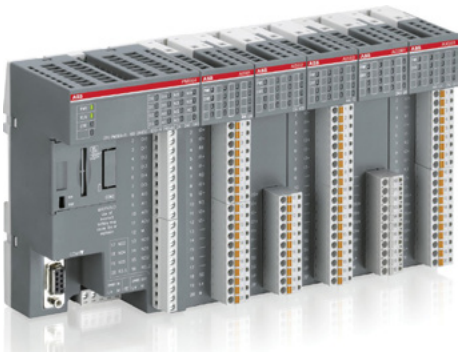
Wireless telemetry systems were implemented to eliminate the use of dedicated wires and circuits to transfer data between a remote site and a control site. A radio system operating on RF (radio frequency) provides single point and/or multi-point communication. This is often called RF telemetry. Advancements and massive developments in wireless technology have scaled up the performance of RF telemetry systems. Wireless telemetry provides a cost-effective way to monitor remote sites without any delay or risk of broken circuits. Changing a wired system to a wireless system can be done at minimal cost.

Wireless Telemetry is used in almost every activity of process engineering, chemical plants, irrigation projects, military, water plants, and wastewater plants.


Enterprise SCADA Software
Tank and Level Measurement Control
Long-range Wireless
Pump Up Control
Pressure Distribution System
Tank or Booster Station
Water Treatment
Domestic & Commercial
Wireless Instrumentation Monitoring
Pumping and Recovery Station
Pump Down Control
Sewage Lift Station
Long-range Wireless
Enterprise SCADA Software
Gate / Canal Control
Restoration to Natural Environment
Wireless Instrumentation Monitoring
Irrigation Water Management
Wastewater Treatment


Secure Cell or Satellite VPN's
VPN or Secure IP based access to and from public communications provider
Rs232 link to either a cellular satellite, or managed radio infrastructure
100 two-way wireless sensors send well data to a base radio logger
Multiple data formats conform to established data managment systems





5.1. RTU

A remote terminal unit (RTU) is a microprocessor- controlled electronic device that interfaces objects in the physical world to a distributed control system or SCADA (supervisory control and data acquisition) system by transmitting telemetry data to a master system, and by using messages from the master supervisory system to control connected objects.

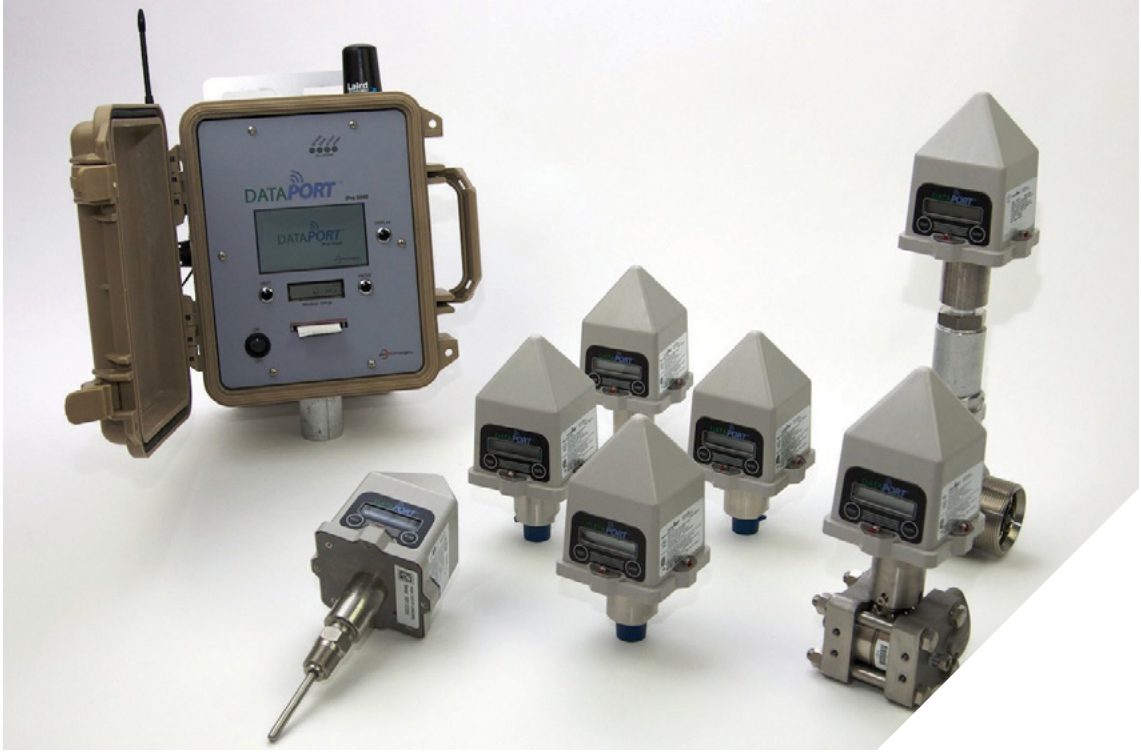
RTUs differ from programmable logic controllers (PLCs) in that RTUs are more suitable for wide geographical telemetry, often using wireless communications, while PLCs are more suitable for local area control (plants, production lines, etc.) where the system utilizes physical media for control.

5.2. Radio Modem

Wireless modems are used to send data between two or more locations. Long range VHF data radios and UHF data radios are capable of communicating up to 100 Km, with typical distance in the 10-40 Km range.

The data the Radio Modem communicates may be telemetry signals from a transducer, remote control signals, computer communications, GPS position, or a host of other digital messages.

Various Input/Output connectors are available including USB, RS232, RS485, RS422, and digital logic levels.



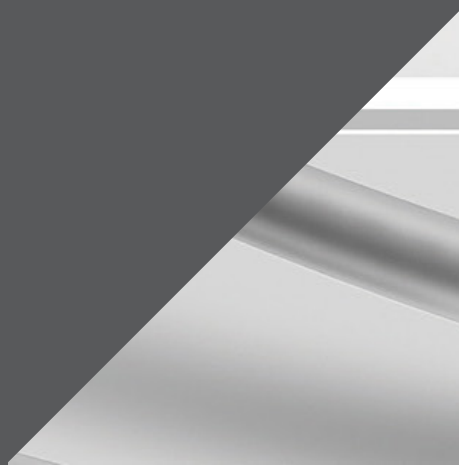
5.3. Wireless Instruments

Wireless instrumentation is creating a lot of enthusiasm within industry today, full of opportunities and possibilities for new and exciting process measurement.

The flexibility of wireless solutions enables less investment in infrastructure while greater process insights wireless into the plant operations, where the measurements were previously too difficult or uneconomical to implement.

6. Industrial Networking

Industrial data networks requirements and industrial bus systems requirements in particular are extensive and constantly expanding. Industrial Ethernet is the established backbone technology to meet these needs.
AdakVision offers a complete, integrated industrial Ethernet infrastructure from well known manufacturers, for data communication. We develop innovative solutions geared towards customer requirements in terms of performance, efficiency, investment and reliability.




SIEMENS
SCALANCE
X204-2FM
P1
P2
P4
L1+
M1
M2
L2+
F1
F2
NEC CLASS2
DC 12...24V 0.27A
204-2BB11-2A

6.1. Managed and Unmanaged Industrial Ethernet Switches

The unmanaged switches are a cost-effective way of entering the world of Industrial Ethernet technology without compromising on quality and reliability. They are suitable for all applications in which switch management is unnecessary: at field level in industrial networks, for example, or in smaller infrastructures.

Managed switches designed for network applications requiring the highest availability and reliability. Managed switches are available supporting a full suite of Layer2 and Layer3 switching functionality.

6.2. Rugged Industrial Ethernet Switches

The harsher the ambient and operating conditions, the greater is the need for extremely robust network components. These switches has been designed specifically for use under extreme conditions like high temperature, shock, vibration or EMC.

Applications:

- Substation IEC61850: The switches meet the requirements of power transmission and distribution.
- Transportation-Approval for ships and train applications
- Hazardous Locations-Approval for use in areas exposed to explosion hazards
- Industrial Automation

6.3. Industrial IP67/IP54 Switches (Waterproof, Fireproof and Vibration-resistant)

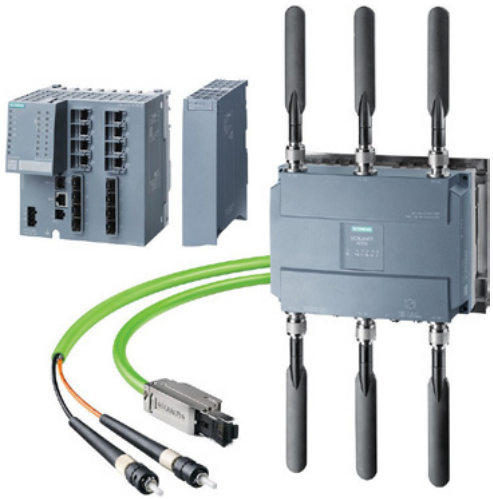
These range of switches can be used anywhere where reliable and efficient data transmission has to be assured at all times, even under the harshest conditions. Thanks to their robust and compact design, the switches can be mounted – without any protective housing – both on a wall or directly on a machine. Even water, dirt, dust, vibrations or excessive mechanical stress don't affect them. In addition, these switches can also withstand extreme heat and cold.

6.4. Industrial Wireless LAN

The use of wireless Ethernet equipment in industrial applications is in its infancy. As hardware vendors provide more equipment with an Ethernet interface, the number of solutions will be endless.

The following are a few applications where industrial wireless Ethernet equipment can be put to use today:

- Backbone for current and future Ethernet networks
- Added bandwidth for remote programming, web monitoring Etc.
- Implement new Ethernet projects without cabling
- Replacement of high-speed data lines
- Provide mobile access to maintenance personnel

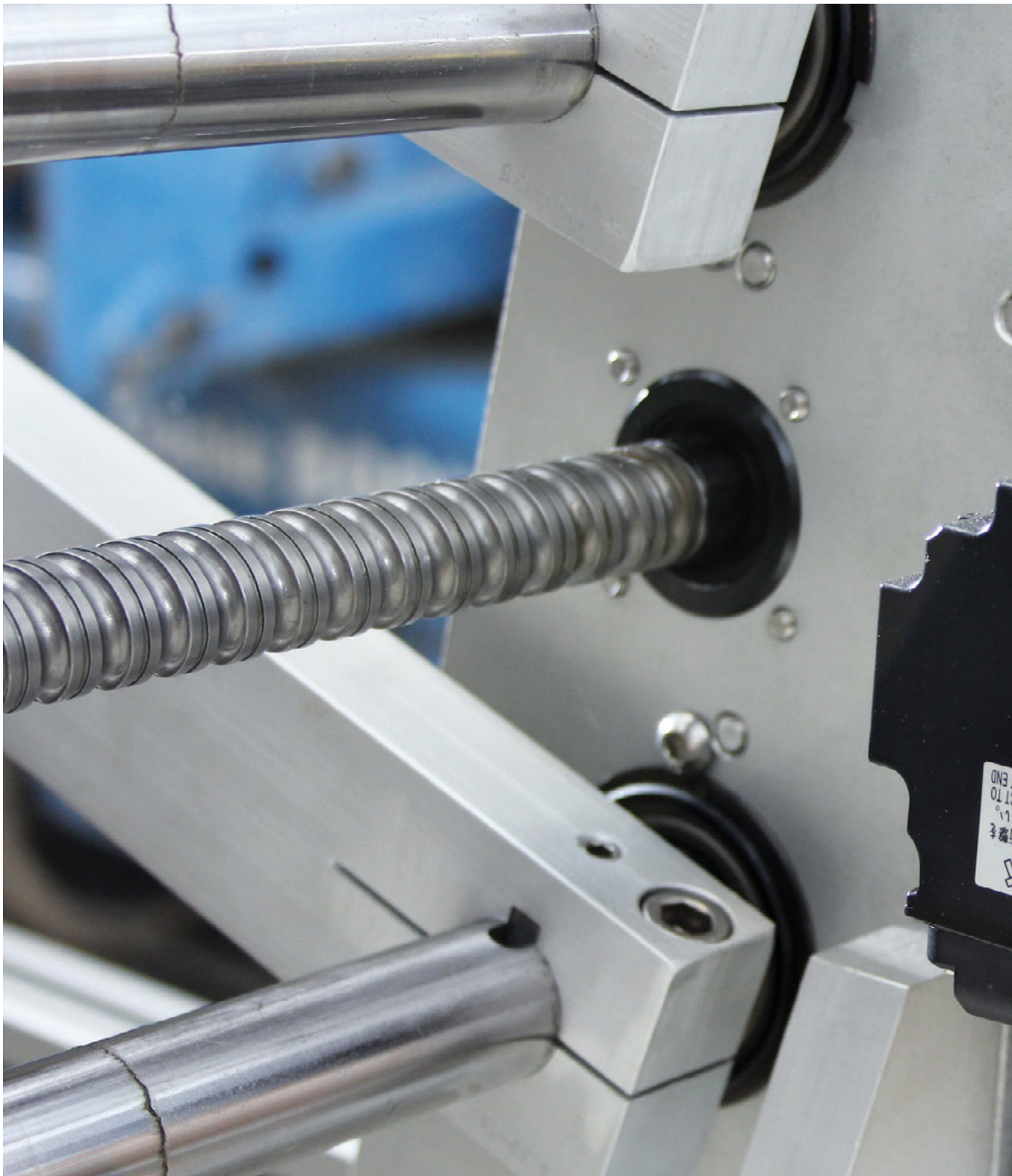


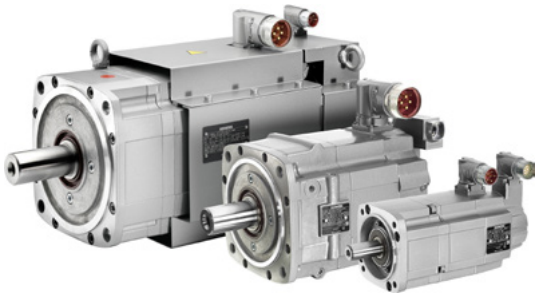
7. Motion Control Systems

We provide solution for motor control application by way of VFD Panels, Servo Drives & Motors, Soft Starters of various makes such as ABB, Siemens, Allen Bradley, GE Fanuc, Mitsubishi, Schneider-Electric, Danfos.
VFDs of various types vector- non vector and of specific applications are used as per customer choice and their preference from view of earlier supplies and inventory.

7.1. Servo Drives

Servo Drives provide fully digital control over position, velocity or torque for synchronous, asynchronous, linear or torque servo motors.





7.2. Variable-Frequency Drives

variable-frequency drive (VFD), also known as an adjustable-frequency or variable-speed drive, AC drive, micro or inverter drive, is a type of adjustable-speed drive used in electro- mechanical drive systems to control AC motor speed and or torque by varying the motor input frequency and voltage.

7.3. Soft Starters

Soft starter is an electrical device specializes for controlling AC motor in soft start, soft stop, light-load energy saving and much more protection features.

8. Industrial PC

Industrial PC’s are designed to withstand the rugged requirements of high temperature, shock and vibration environments typically found on an industrial automation floor. Certifications include CE, cUL, UL, Class 1 Div 2 hazardous ratings. Most importantly, High-Performance PCs offer the longest product availability minimizing product changeover and upgrades.


box PC
n WinAC
as controller
SIEMENS

9. Our Services

At Adak Vision Co. we provide our clients with reliable and straight-forward solutions to their most complex challenges, fulfilling needs while meeting budget requirements.

Our Industrial Automation and Control Systems dept. specializes in Systems Integration, Automation, and Procurement in the Oil & Gas, petrochemical, Power Plant, Cement, water treatment and steel industries. We offer process experience in the market segments we serve, understanding our clients' businesses and objectives; we have a reputation for delivering quality services on time and having the resources to execute and support projects from the most basic to the complex.

The solutions we provide allow our clients to focus on their businesses while being offered concept to completion work and lifecycle support. Among the services we offer:
conceptual and preliminary engineering services, engineering design, construction support and after-market services.


25%

10. Our Main Projects

Phase 14 of Parse-e-Jonoubi

Phase 19 of Parse-e-Jonoubi

Persian Gulf Star Oil Company

Bandar Imam Petrochemical Company

Rudshur Power Plant

Bojnord Cement Company

Shiraz Petrochemical Co.

North Yaran Oil Field

South Azadegan Oil Field

Goreh-Jask Pipeline

Ilam Petrochemical Complex

11. Partners, Clients, AVL

11.1. Our Main Partners


ABB


aks technologies inc.


Allen-Bradley


BELDEN
SENDING ALL THE RIGHT SIGNALS


CONTROL
MICROSYSTEMS


EMERSON


HIMA


HIRSCHMANN
A BELDEN BRAND


Honeywell


invensys


MOXA


pilz


Rockwell
Automation


RUGGEDCOM
INDUSTRIAL STRENGTH NETWORKS


Schneider
Electric


SIEMENS


Telemecanique


TRIO
DATACOM


WAGO
INNOVATIVE CONNECTIONS


YOKOGAWA


MITSUBISHI
ELECTRIC


Rexroth
Bosch Group


OMRON

11.2. Our Major Clients


ABAD RAHAN PARS
INTERNATIONAL GROUP


BAM DEJ TARH
ENGINEERING & MANAGEMENT


OIEC
building trust


باختر
شرکت پتروشیمی (سهامی خاص)


آسفالت طوس


شرکت فراسکو عسلویه
FARASAKOU
ASSALUYEH CO.


PETRO TECH
شرکت بین المللی
پترو تک


شرکت بازرگانی ایران پایپینگ
تامین کننده برتر در صنعت نفت و گاز و پتروشیمی


Jondishapour Co.
شرکت جندی شاپور


Petro Haveh
Group


Badr-e-Sharqh
Petrochemical Complex
(BSPC)


SAZEH CONSULTANTS
Engineering and Construction


PJPC
یادجم


PGPIC
شرکت پتروشیمی صنف خلیج فارس


NARGAN


IDEA
ENERGY

11.3. Member of Approved Vendor List for:


SAZEH CONSULTANTS
Engineering and Construction


شرکت پالایش نفت تهران


OIEC
building trust


گروه مپنا
MAPNA GROUP


شرکت پتروشیمی آبادان


شرکت صنایع پتروشیمی خلیج فارس
Persian Gulf Petrochemical Industries Co.
PGPIC
شرکت سهامی پتروشیمی بوعلی سینا


شرکت نفت فلات قاره ایران


B.O.R.C
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