AUTOMATIONWORX ....

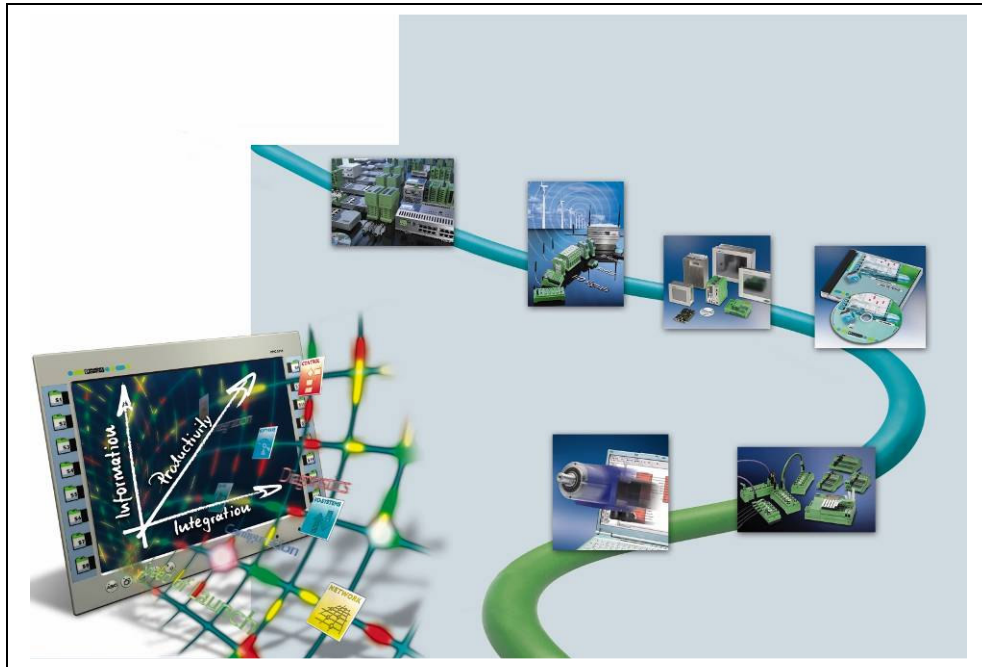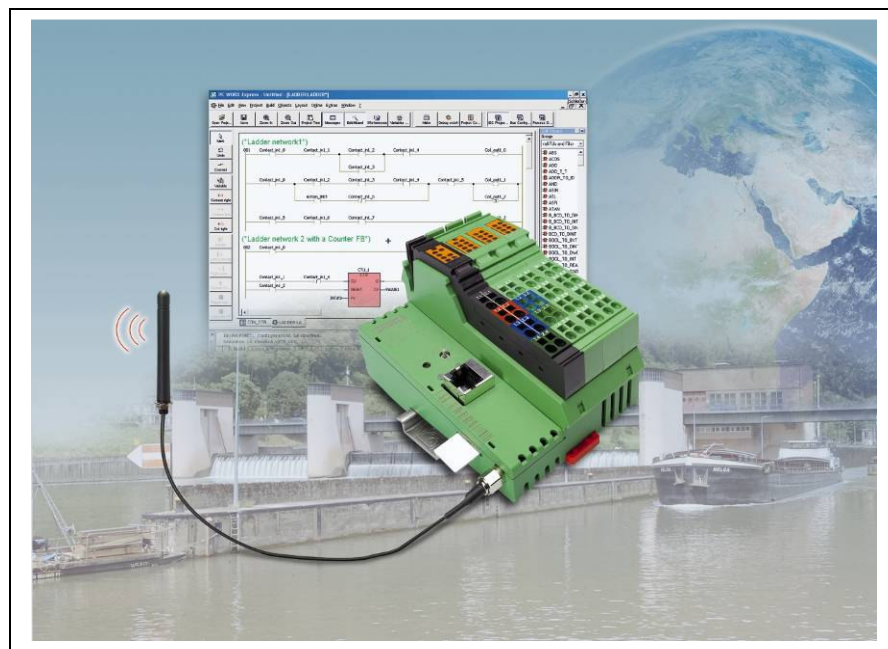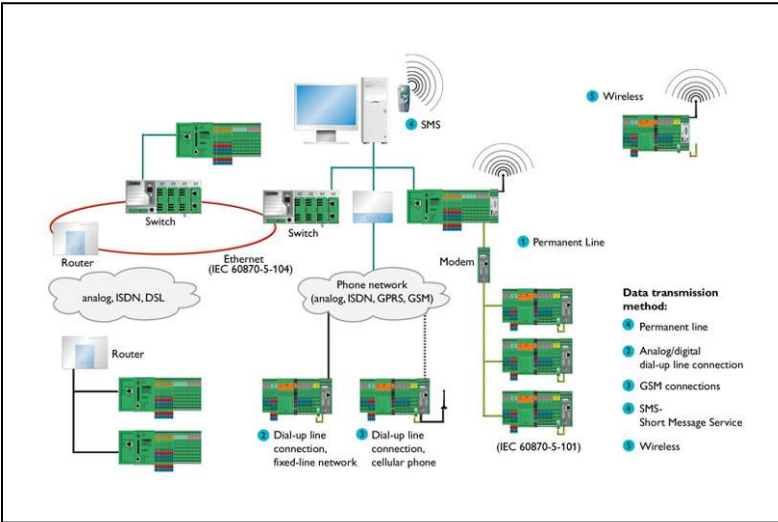# .... BECAUSE IT WORKS

# OUR REMOTE CONTROL SOLUTION – AS UNIQUE AS YOUR APPLICATION

INTRODUCTION

You want to keep a good eye on all parts of your system, be able to intervene in and control the process and be accurately informed about faults and failures? Then convince yourself of AUTOMATIONWORX for Remote Systems. This function block library and the proven control and I/O components of the AUTOMATIONWORX system kit allow you to implement numerous modern remote control tasks quickly and easily.
Intelligent solutions from our company bring you nearer to your goals!

Our goal is to enable any communication structures to be realized with standard automation components – on the basis of the "AUTOMATIONWORX for Remote Systems" function block library. Adapted to your application, proven standard components, e.g. from the Inline automation kit, as well as controllers, modems and remote control software, are used to construct distributed external stations and modular remote control stations. All major components come from a single source, ensuring a great degree of continuity in hardware and software. Our solution is highly modular and can always be adapted to the changing requirements of your application.
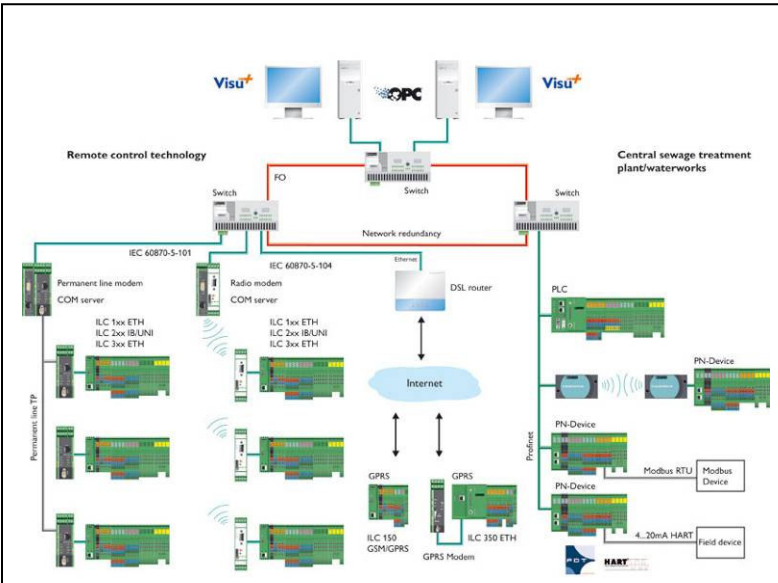
The ILC 150 GSM/GPRS is a cost-efficient controller ideal for integrating remote stations located far away from each other or distributed over a large area in the company network.

The GSM interface transfers process data, operating states and fault messages across all prevailing mobile telephone networks and across any distance to the control center or mobile telephone of the on-call service personnel. There is no need to lay expensive data cables.
GPRS provides a packet-based mobile service with a permanent online connection, the cost of which depends on the volume of data transmitted.

Integration of the GSM modem establishes new areas of applications for the ILC150 ETH mini controller. Stations that work autonomously, and cannot be connected to the public telephone network, can transmit their process data or error messages to the control room using the GSM system. Moreover, distributed control systems which are spread over a large distance can be networked at low cost. SMS, GSM modem or GPRS connections can be used.

As ILC150 ETH functions, such as the integrated web server or the AX OPC server functions are also available for the ILC 150 GSM/GPRS controller, process parameters and sizes can be easily visualized in local networks as well as worldwide.

THE NEED AND OBJECTIVE

Remote automation is required basically to cover large area plants and remote sites, to overcome geographical obstacles on site to achieve the following objectives:-

➢ Reduce lost and accounted process information with more accurate measurements and better control of set points.
➢ Know what the problem is and what's required to correct it before Personnel travel to site. They "Know before they go."
➢ Product the right data, in the right format, on demand, with less cost and effort.
➢ Eliminate unnecessary field trips for data retrieval, configuration changes, or asset identification. Less windshield time means lower cost.
➢ Asset optimization lets your target maintenance personnel to the highest value equipment.
➢ Predict failures and other problems that could damage the environment, endanger personnel and results in fines.
➢ Improve regulatory compliance and reporting.
➢ Improve throughput and yield.

TECHNOLOGY
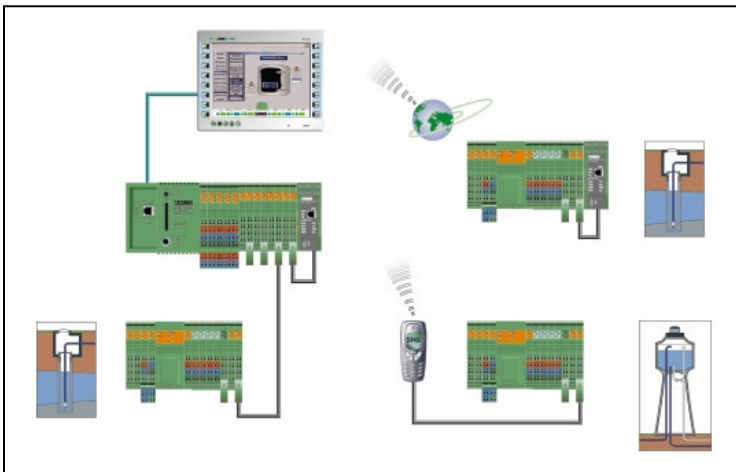
Remote Control applications are diverse and require reliable and robust communication. Hence, Phoenix Contact uses various technologies to communicate between a remote station and the central control station.

➢ Trusted Wireless
➢ GPRS
➢ GSM
➢ Dial up Line
➢ Permanent Line
➢ ISDN
➢ DSL
➢ Ethernet (Fiber Optics)
➢ Multiplexers (Both wired and Wireless).

APPLICATION AREAS

The need of Remote automation is rapidly increasing along with the demand of information by the management.

➢ Pump House Automation
➢ Sub-Station Automation
➢ Telecom tower Automation
➢ Wind Park Automation
➢ Gas station Automation
➢ Utility Automation
➢ Water and waste water Management
➢ Dam Automation
➢ Logistic Automation
➢ Pipe Line Automation
➢ OEM – Machine Builders and Many …..

WE UNDERSTAND YOUR APPLICATION:-

PUMPHOUSE AUTOMATION

Pump House is an integral part of City water supply and various industries (mainly process and food and drug industry). Pump houses are normally located near to the water source like River or Lake and at places where underground water is available with ease and with required quality and quantity.

As the nature of application suggest these pump houses are distributed over a large area in case of city water supply and at long distances from the factory site in case of industries. Hence a need of remote control and monitoring system has risen due to high cost of scheduled maintenance and to reduce the downtime of these essential services to a minimum.

Phoenix contact offers the widest range of remote control solutions based on various proven technologies, like, Trusted wireless, GSM/GPRS, Permanent line modems, Telephone modem and ISDN.

Other then control and monitoring data alarm messages to be sent to the concerned persons in time is highly desirable.

With serial trusted wireless system it is possible to communicate with 254 stations in a mesh network over license free frequency of 2.4 GHz. This makes the system much more reliable, flexible and easy to use. The main advantage for the customer is that there is no reoccurring cost for the system, hence minimizing the operating cost of the system.

Customer also as the option to choose the remote communication medium based on his choice from our wide range of Industrial modems. These modem facilates him to use either wired network over long distance, Permanent line modem and PSTN modems; or go wireless with GSM/GPRS modems. These modems can be used with a new system or an existing system by using simple serial RS232/RS485 interface.

The ILC150 GSM/GPRS controller from Phoenix Contact is a member of newly launched Class 100 series of high performance controllers having GSM/GPRS interface on board. This controller provides high performance PLC system with IT features packed along with GSM/GPRS interface for remote control and monitoring with alarm message handling over GSM. The customer has the benefits that single control system fulfills complete requirement of remote control automation.

The Ethernet interface allows the data to be transmitted over long distance over Fiber optics and flexibility to communicate with complete range of modems gives the choice to use the mode of remote data exchange. The GSM/GPRS interface can be used simply and efficiently by using easy to use function block making the engineering simple as never before. ILC 150GSM/GPRS is all set to create a revolution in the field of remote control automation.
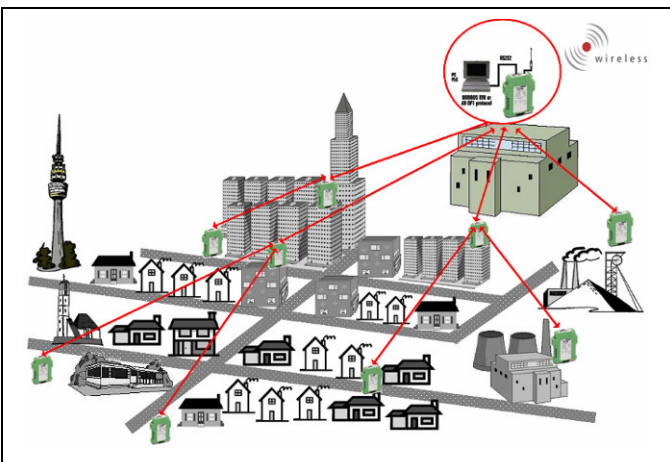
WATER AND WASTE WATER TREATMENT PLANT
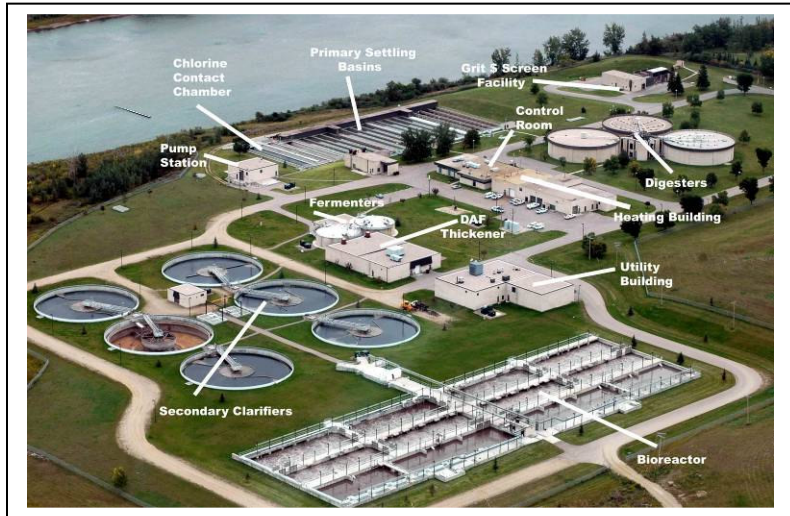
Water and waste water treatment plant are mandatory as part of process requirements and government regulations. Water treatment plants are widely used to process the raw water and making it suitable for drinking and to be used in various industrial process and has specific importance in Food , drug and process industry. Waste water treatment plants are required for sewage treatment and effluent treatment from various industries.

Sewage treatment plants are regulated by government, while Effluent treatment plants are normally regulated by private firms or a group of private firms in case of Common effluent treatment plants.

As per the process requirement these water treatment plants are well spread over a large area, sometimes at remote locations also specially in case of Waste water treatment plants and hence comes the remote control and monitoring into the scenario.

The continuous data monitoring and collection is an mandatory requirement as per the rules and regulations of the Pollution control board in India.

Phoenix Contact offers wide range of solutions for this. With IT capabilities packed into the control system data monitoring and collection has never been so easy. Web server and FTP server along with OPC capabilities offers the ideal platform for the customer for data collection from the field to the management level.
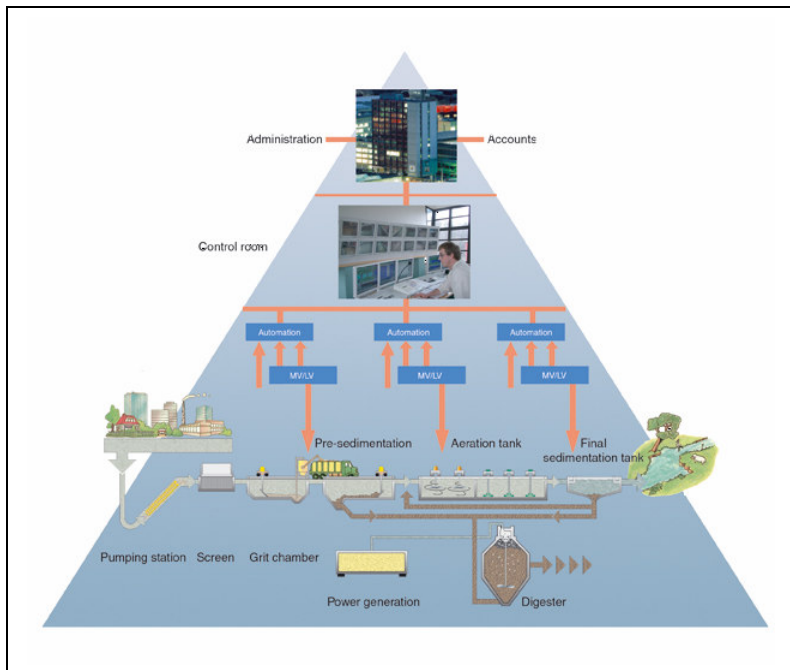
The Ethernet interface with every controller from phoenix contact allows integrating the whole plant on a common platform without worrying about the distance, as now he has the choice either to go with copper cables or fiber optics and even using Wireless LAN as per his requirements.

If the plant is located in a remote location, then also the data can reach management level using Radio wireless, GSM/GPRS or telephone network, thanks to the wide range of modems from Phoenix Contact.

Once again Phoenix contact takes the lead in remote control and data exchange by providing just the right solution using ILC150GSM/GPRS small water and waste water treatment plants can have a control system which take cares of remote data access without having to use any external hardware.

Particularly, Webserver offers an edge over monitoring sub-system in the plant by allowing the customer to monitor the system status from his desktop without having to go to the site or the control room and even better, without having to install any software on his desktop.

FTP, SQL and OPC features allows the customer our control system with his choice of visualization or the management software tools for data logging and report generation.

Especially with Common Effluent treatment plants the data from various effluent generating units can be sent to Common ETP using either trusted wireless or ILC150GSM/GPRS in a closed and secure network.

WIND PARK MANAGEMENT
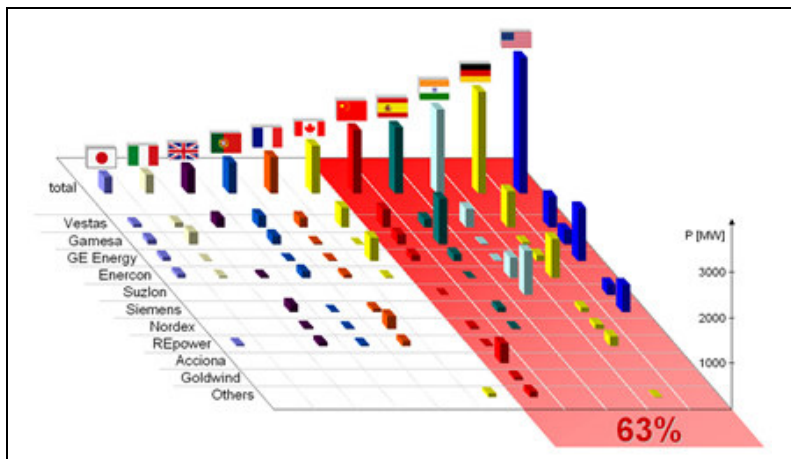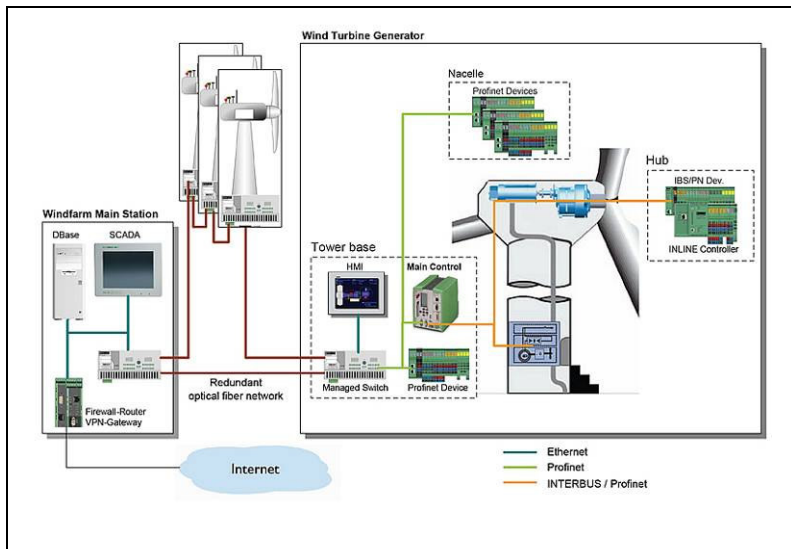
Wind turbines are gaining popularity as each day passes as a source of clean energy generation options. Hence there is rapid increase in the growth of wind farms coming up every year. Along with the wind turbine control the control system in place is also required to fulfill the functionality of data monitoring and exchange between wind turbine and wind park control station and to the headquarters of the wind farm owners located normally far away from the site.

The data required in the energy generation, environmental conditions at the site, Wind turbine system status and others. This data is required continuously and reliably.
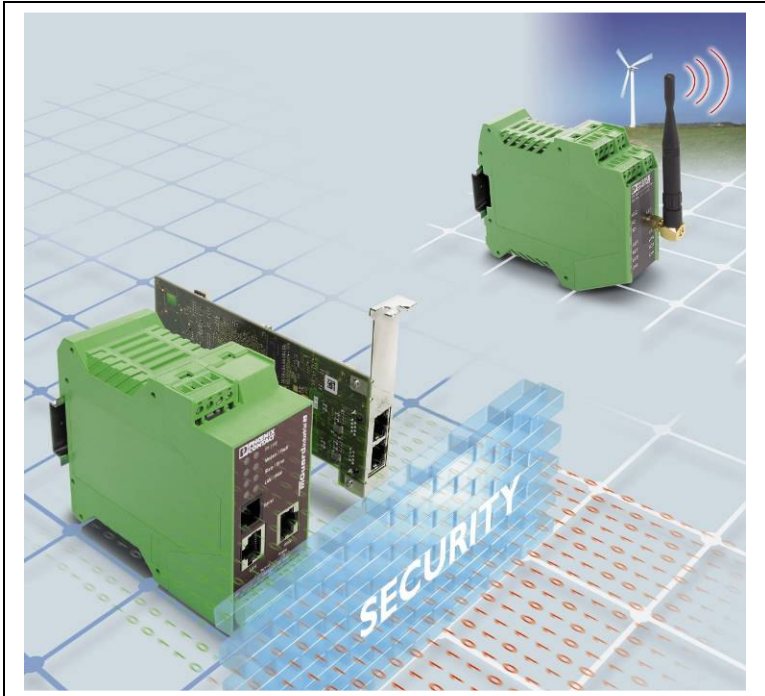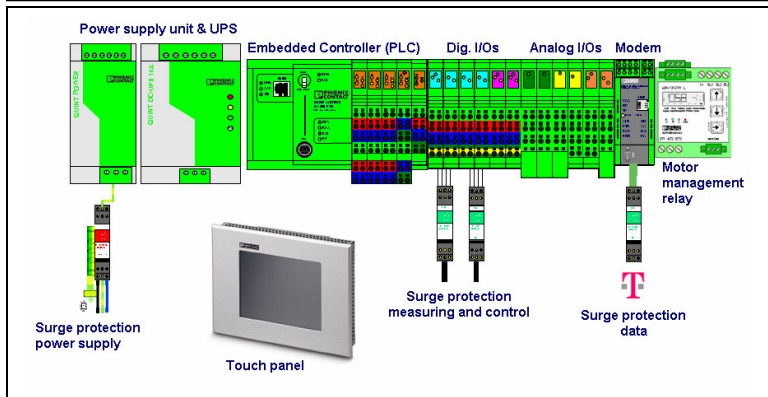
The main challenge the Automation system providers face is the electro magnetic field presence in the park. Hence many a times the wireless system used proves to be inefficient for the purpose. The Wind farms are normally spread out in Km's of area and hence need to reliably collect the data from every wind turbine is quite a task for the automation solution providers.

Phoenix Contact provides a reliable communication within the park using the proven fiber optic technology in such conditions.

The communication from the park to the central monitoring and control station can be done over internet either using Analog modems or ISDN. The power full controllers from phoenix contact with its IT powered technology provides the real time data to the wind park control station over FTP and SQL technologies and each wind turbine can also be monitored separately using the Webserver. The connection over internet can be secured and reliable using the Router and firewall module from Phoenix Contact.

Along with the data monitoring and collection technology phoenix contact also provides GSM/GPRS modems along with ILC150GSM/GPRS from alarm messaging to your team at site. Based on the system requirement Phoenix contact can provide the relevant products and solutions for your success.

To put in more simple words Phoenix contact provides solutions for wind energy from Wind turbine control, Wind farm management and Central data access to the user as a single source for the complete solution.

GAS STATION RETAIL OUTLET AUTOMATION

Power supply unit & UPS — Embedded Controller (PLC) — Dig. I/Os — Analog I/Os — Modem

Motor management relay

Surge protection power supply

Touch panel

Surge protection measuring and control

Surge protection data

SECURITY

With the increase in the vehicle population every day, Gas station retail outlets are required to be more and more advanced so that they can fulfill the requirements of maximum productivity from minimum of investments. Automation of these outlets involve the monitoring of the fuel discharge with every transaction, Fuel tank level monitoring, complete pump station lightning and resource consumption monitoring.

Phoenix Contact provides an efficient way to complete this responsibility of collecting data from various fuel dispensing devices and various sensors available at the station. Our controllers can collect data from 8/16 fuel dispensing units over RS232/RS485 while collecting data from various sensors and other monitoring parameters form variety of systems using the rich inline I/O's family.

The collected data is required at the site and at the central monitoring and data logging station simultaneously and online al the time. Phoenix contact's remote control automaton technology well proven over a number of years plays a vital role here too. You can choose either you want to go with GSM/GPRS network or Telephone network or even over ISDN network is made possible using the right modem and router from the range of Phoenix Contact.

ISDN network is the most preferred way of communicating data from remote location to central control station as this enables to transfer the data real-time and that too without compromising on the speed. Sending data over ISDN network require security, Here also you will find the right solution from Phoenix Contact in form of Industrial Router / Firewall products with capability of ISDN and VLAN enabling you to make secured data transfer from a no. of locations at the same time with reliability and safety.

One of the challenges customer face is the maintenance of the remotely located outlets , Using the GSM/GPRS enabled Class 100 controller or modem from Phoenix Contact the alarm message and system status can be given to the concerned persons as and when required to enable just in time maintenance activities along with certain steps can also be taken for preventive maintenance.

Phoenix Contact provides the remote control and monitoring of the Gas station retail outlet with efficiently and with security for your success.
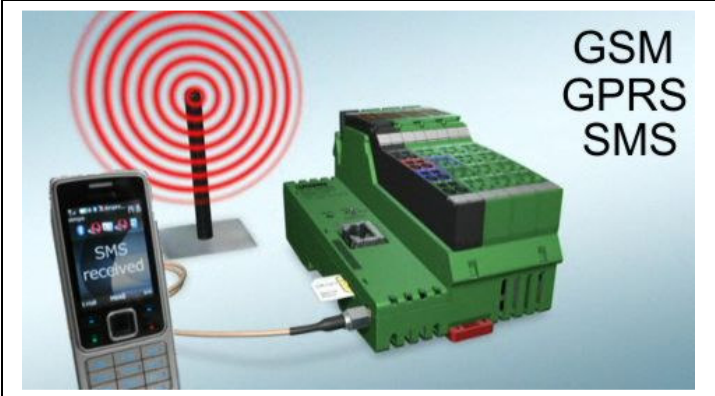
TELECOM TOWER AUTOMATION

Cell Phones are a part of our life and hence telecom towers are of vital importance. The main challenge the service provider faces today is making sure the system availability 24X7. With uncertainty in the power availability, every telecom tower is equipped with a generator. Functioning of these generators and other devices available at the telecom tower is crucial as it directly reflects in the revenue of the organization.

Phoenix contact has come up with two different solutions as per the customer requirement for the telecom tower automation to ensure the complete system availability.

ILC 150 GSM/GPRS enables not only to monitor the diesel tank level of the generator but also to automate the complete site including the utility and building automation of the site. It can not only monitor the various parameters but can also make the data available to user for further analysis either over GSM/GPRS network or ISDN network. Local monitoring can be done using the integrated Webserver.

SMS relay is another interesting product and indeed very useful in case user requires only the alarm messages based on fuel tank level of the generator and other preset conditions. The SMS relay can not only intimate the concern person for the alarm situation but can also be given command to do simple switching operations based on the GSM messages received. This provides the necessary input to the user to take necessary action before the system goes down and hence ensures the system availability and in turn the increased productivity.

Phoenix Contact being a partner for telecom industry for a long time now understand the system requirement and challenges our customer faces day to day. Hence we provide the products not only to automate your system but also with the required security in form of password in case of monitoring and control using SMS Relay and Router and firewall system in case of using the GSM/GPRS integrated controller from class 100 when customer wants to have complete data logging and centralized system monitoring.

Phoenix Contact has proven itself to a competent partner by not only providing solution for system monitoring but also safety, using our surge protection devices and filters they can be assured of the reliable operation of there system.

The preventive maintenance and that too given the flexibility of condition based maintenance instead of scheduled maintenance makes sure not only the system availability 24X7 but also saves money and time for the user.

REMOTE SOLUTIONS FOR MACHINES AND SYSTEMS
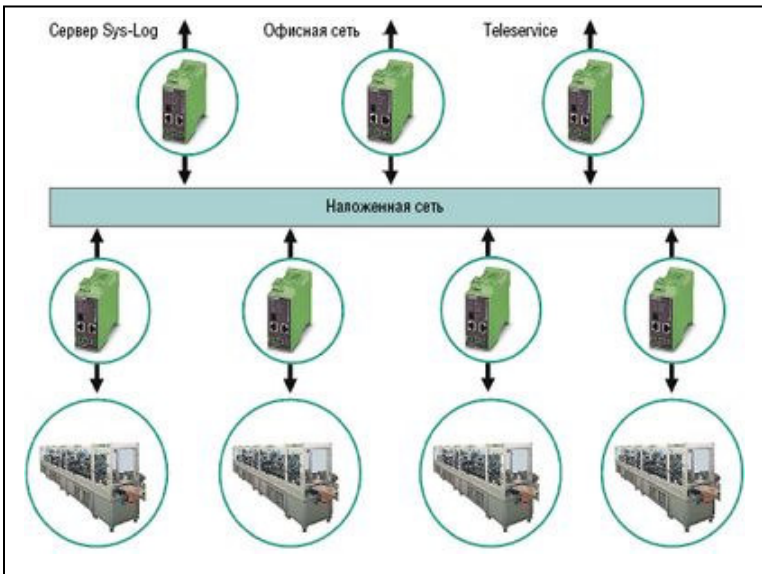
Remote solutions for Machines and systems is a very challenging field and not been addressed to the extent it should have been. Phoenix Contact being a proven solution partner for remote technology has come up with unique solution for the machine building industry and system suppliers.

To go in detail of the solution we need to understand the need of remote accessibility for the machines and systems. Machine manufacturer supplies the machines to different customers situated at various location and even they can be in different countries. Hence the after sales support required for the system consists of heavy amount which either has to be included in the machine cost or has to charged separately in both cases they looses the edge over a local supplier. To be competent enough in the present global market they need to address this issue on priority.

Either they should be able to get the information immediately as soon as any changes have been made in the control system or they should be able to monitor and update the control system remotely once intimated about the problem.

Phoenix Contact addresses both of these issues, having an integrated SNMP protocol with the control system the supplier can be informed about the system status over email using the ISDN network securely thanks to the router from phoenix Contact with integrated firewall. In case the connection to an ISDN network is not possible then ILC150 GSM/GPRS can be used for the alarm and system status reporting via GSM interface. To achieve the remote updating of the control system user can do the same over the ISDN network thanks to our router /Firewall with ISDN and VPN features. This can not only be used for the after sales support but also can be used for updating the system in the future.

The end user can also exploit these features for remote production data monitoring and along with usage of Webserver, FTP server, SNMP, SNTP and others for simple monitoring of the system or machines remotely sitting at his desktop.

They above is true not only for the PLC based system but also for PC based control systems as phoenix contact has PCI interface based security router/firewalls with ISDN /VPN features, but also offers a complete range of various modems for remote data monitoring and making the system available for data access.

Phoenix Contact being a competent partner for machine and system building understand the system and user requirement and hence ready with the complete control cabinet solutions along with the above discussed remote solutions from Phoenix Contact.

UTILITY AUTOMATION
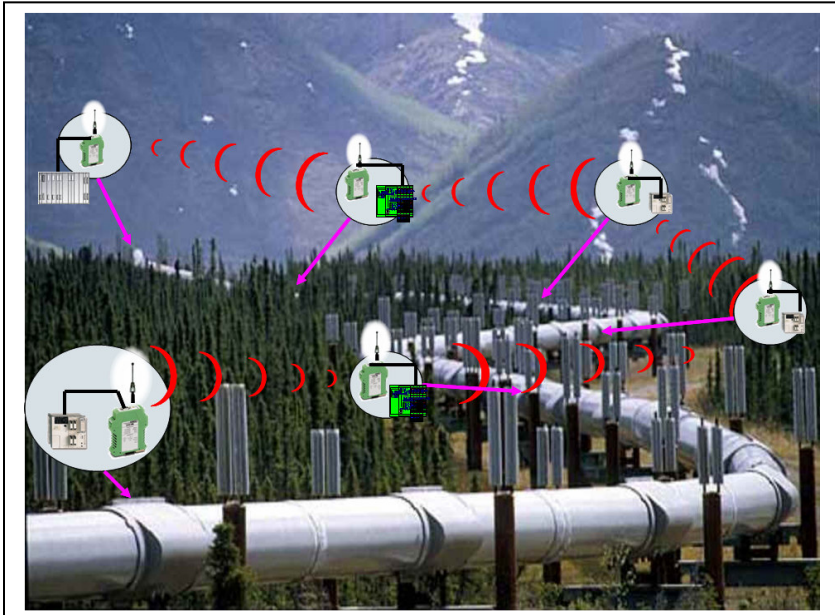
Utility automation requires extensive remote control and monitoring as the system normally either spread over a large geographical are or at a remote location. Today with the need of data at the management level requires the utility control system to do the additional functionality of the data transfer and remote control management.

Phoenix contact provides various solutions for the same, user can choose either to go with wired or wireless based on his requirement.

In case or wired solution we offer permanent line modem or fiber optic connectivity for long distance communication. For wireless we offer either trusted wireless module operating on license free band of 2.4 GHz or GSM/GPRS modem with serial or Ethernet connectivity.

User can also have GSM/GPRS integrated controllers (ILC150 GSM/GPRS) or a simple SMS Relay for his applications. Phoenix Contact provides the complete solutions in every case. Starting with the terminal blocks for every applications and signals, Surge protection devices for all power, data and signal lines, Signal converters and isolators for every applications and environment, various switching devices along with utility modules, Ethernet switches, Fiber optics and most important are the Controllers with IT feature packed at no extra cost along with data security elements. In short Phoenix Contact offers you a one stop shop for your complete requirement of Remote system solution. We offer you unique solutions of every application of yours. We give you the flexibility to choose the medium and technology you are comfortable with.

This is the era of IT technology and every management wants to have the maximum data to ensure the optimum usage of its resources, Hence the IT Powered automation concept is the Ideal for the today's industry requirements.

With Phoenix Contact as your partner you can concentrate on your core business while our solutions take care of rest.

"Reliable and secure remote control system for the success of our customers."

SUPLIMENTRY PRODUCT RANGE

Our goal is to enable any communication structures to be realized with standard automation components – on the basis of the "AUTOMATIONWORX for Remote Systems" function block library. Adapted to your application, proven standard components, e.g. from the Inline automation kit, as well as controllers, modems and remote control software, are used to construct distributed external stations and modular remote control stations.

All major components come from a single source, ensuring a great degree of continuity in hardware and software. Our solution is highly modular and can always be adapted to the changing requirements of your application.
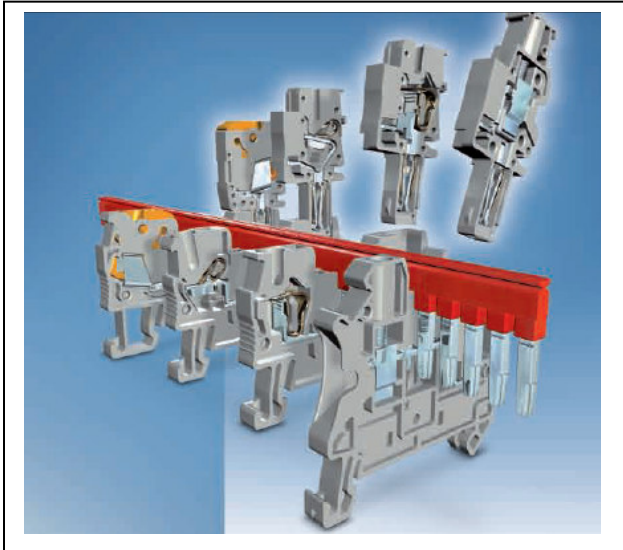
With CLIPLINE complete, the unique modular terminal block system from Phoenix Contact, the user has a choice of whichever connection method they prefer – screw, spring-cage, push-in, insulation displacement or ring lug connection. All connection technologies can be combined using the same range of accessories.

The CLIPLINE complete system offers a uniform range of accessories for all connection technologies. Bridging, marking and testing accessories are standardized and greatly reduce logistics costs. In addition, all the modular terminal blocks of the CLIPLINE complete system can be combined with each other. This gives the user a high degree of flexibility and configuration of the control cabinet.
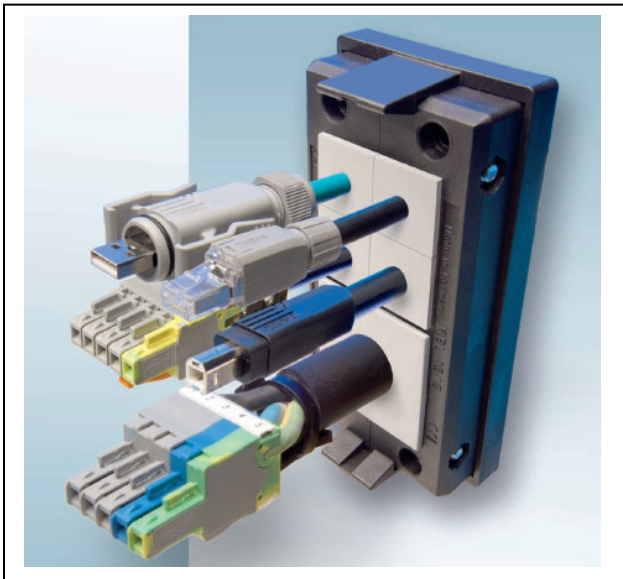
The KEL system uses the same cutouts and mounting dimensions for mounting as the heavy duty connectors; the same stamping tools can therefore be used. However, the KEL system allows feeding up to 40 cables and lines into one cutout in contrast to the heavy-duty connector. Since the connectors do not have to be separated from the cable for mounting, KEL is ideal for the use of bus systems, measuring and control lines, and any place where subsequent expansions or replacements of complete cables can be foreseen.

Using the KEL systems, preassembled lines can be installed in control cabinets and housings to save space and provide a high protection classification (IP54). Combined with the COMBI plug-in system from PHOENIX CONTACT, it offers a quick and cost-effective alternative to the connection with heavy-duty connectors.

Reliable connection - The slit KEL grommets allow a quick assembly without having to separate the connectors from the cable. The manufacturer's warranty of preassembled cables therefore remains valid. Simple assembly - The KEL system has a modular design and allows a simple exchange of cables. The equipped sealing frame can be quickly snapped open and shut with the KEL-SNAP frame. Space saving cable entry - Up to 40 cables can be installed in the control cabinet with a KEL system due to a standard cutout for heavy duty connectors.

Thermal Circuit Breaker - The thermal circuit breaker can be switched back on again, has a compact design and is available in nine finely graded steps for nominal currents from 0.25 A to 10 A. The integrated ON/OFF switching function makes it possible to switch the circuit breaker back on immediately after triggering thus increasing the availability of the system.

Thermomagnetic Circuit Breaker - the enormous requirements where protective equipment is concerned, however, are more than fulfilled by the Thermomagnetic circuit breaker. It has the following features:
– Thermomagnetic triggering system
– Modular and flexible structure
– Auxiliary contacts for fault assessment
– Fine nominal current gradations, which guarantee reliable protection of sensitive equipment and systems

Selective Circuit Breaker - The new electronic circuit breaker ECP with a width of only 12.5 mm selectively protects all 24 V DC load circuits. With a combination of active electronic current limitation and proven circuit breaker technology with electrical isolation.

With PACT Analog, Phoenix Contact provides a complete range of bus-bar, plug-in and winding current transformers for measuring high-currents ranging between 1 A and 4000 A. Our high-quality measuring transducers are available in almost 3000 different designs. You can choose from different accuracy classes, capacities and sizes depending on your application. Different mounting positions enable the use of this range even in applications where space is a critical factor.

Phoenix Contact current transformers have another important advantage. If the rated power has, for instance, been specified as 10 V A, this refers to the nominal current. The transformer can actually produce 40% more power than specified due to the power reserve of 120% of the nominal current.

The PSI-MODEM-SMS-REL... is a compact remote control and signaling system. Six digital or configurable analog/digital inputs and four relay outputs with PDT contacts are monitored and controlled using SMS messages via any GSM mobile phone network. The integrated phonebook stores up to 50 numbers that are to receive the SMS messages. Each change of status at the input sends a user-defined message to the selected receivers via SMS. A predefined message can be used to enable and disable the outputs via SMS. In this way, an error can be acknowledged and even removed remotely. To obtain an overview of the system state, the status of the inputs and outputs can be queried. As an option, the relay outputs can be switched for a predefined period and then return to their initial state. Integrated password protection prevents unauthorized access. The PSI-MODEM-SMS-REL... is set up using the supplied configuration software.

The PSI modems have been specially tailored to the industrial requirements of remote maintenance, process data acquisition and alarm messaging. It is possible to remedy many faults online anywhere in the world via the phone or mobile phone network: a fast and inexpensive solution. Remote maintenance is enabled via dial-up line connections. Process data are made available all the time via permanent lines or GPRS connections.

Startup of all modems is simple with Plug and Play and convenient configuration software. The modems have been tested with the most common PLCs from various manufacturers and industrial PCs in numerous applications for remote maintenance. All four modems can be combined perfectly with the Com Server for the remote control of Ethernet networks.

The performance and reliability of a power supply is critical to the operation of today's complex control systems. Phoenix Contact power supplies are designed to meet and exceed the demands of modern control systems in order to ensure optimum system performance.
- Worldwide use due to wide-range input and international approvals
- High system reliability due to long mains failure bridging times with full load and high MTBF > 500.000 h
- To connect in parallel to increase power or achieve redundancy
- Simplified startup with LED-signaling

QUINT POWER power supply units offer functional advantages in an especially slim design. The unique SFB technology and the extended preventive function monitoring increase application availability.
QUINT UPS provides the much needed uninterrupted power supply to the Control system at remote locations.

In this digital era, the analog measured value acquisition has become extremely important, especially in the process industry. A wide range of values, such as current, voltage, frequency, temperature, resistance etc. are determined here and should be processed from the control unit/command level.
However, large conductor lengths as well as coupled inductive/capacitive interferences in industrial plants hinder secure signal transmission. Moreover, the sensor signals and the control unit are not always (directly) in harmony with one another. Signal isolation, conversion, amplification as well as signal filtering is therefore required here. Analog isolating amplifiers are used in this particular case.
The signal converters from Phoenix Contact provide a complete and high-performance range for all areas of application of the MCR technology.

Wireless data transmission system for RS-232 and RS-422/RS-485 serial interfaces -

Using the RAD-ISM-2400-DATA-BD wireless module for serial interfaces, it is possible to network several controllers or other serial I/Os simply and fast with wireless technology. The proven Trusted Wireless technology guarantees safe and reliable transmission of your process data in a harsh industrial environment. With a transmission speed of 250 kbps, the controller of your control room can communicate bidirectional as a master with up to 254 slaves, either directly or via repeaters.

Screwing, connect, get ready --
SURGETRAB dischargers are for all current Standard signals, with their connecting directly on the sensor head attached. This saves time and assembly costs, an additional junction box for installation the over voltage is deleted. There are connection options for the Continuity and parallel wiring to Disposal. This allows the protection circuit either in series or parallel to Interface of the sensor is connected. For the variant to the parallel wiring is a second threaded connector on the sensor head required.

TRABTECH surge protection Condition Monitoring Solutions for surge protection remote monitoring TRABTECH surge protection devices with remote indication contacts have been designed such that they can be integrated into every remote indication concept. Phoenix Contact offers solutions for this from a single source.

Surge protection -- Ideally equipped for remote monitoring

THE COMPLETE SOLUTION AT A GLANCE
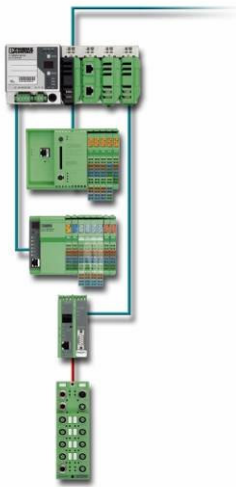
Phoenix Contact is a leading manufacturer of electrical connection and industrial automation technology.

In 1923, the first modular terminal block of the world was developed in close cooperation with a power supply company.

Even today, we have a close dialog with our customers and also believe in a high degree of manufacturing penetration in order to ensure delivery reliability and consistent quality. Thanks to our tightly meshed sales network, we provide local as well as global support to you and your customers.

With the same dynamics with which the power supply market has developed in the last few years, Phoenix Contact has and will provide innovations that "give wings" to every industrial Automation Sector.

The product range includes high-grade components, systems and services across a wide variety of applications. The selection ranges from modular terminal blocks to interface technology, PCB connection technology and solutions for surge protection to hardware and software solutions for the automation of industrial systems.
• Automation and control technology
• Electrical and electronic switching devices
• Power supply units
• Interface converters
• Signal conditioning
• Wireless transmission systems
• Lightning and surge protection
• Industrial connection and device connection technology
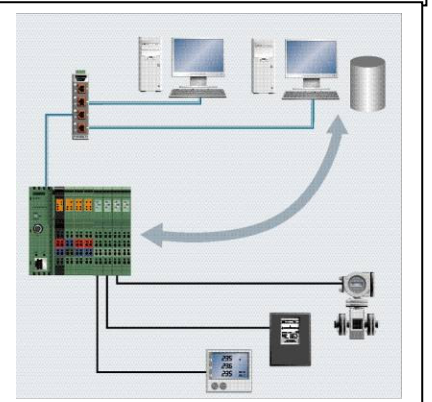• Cabling systems
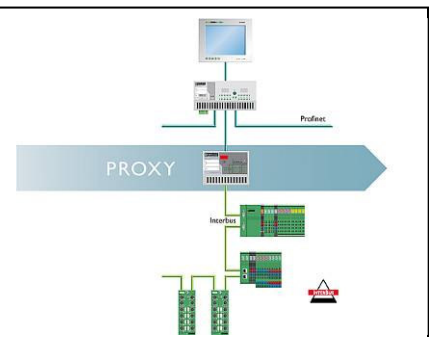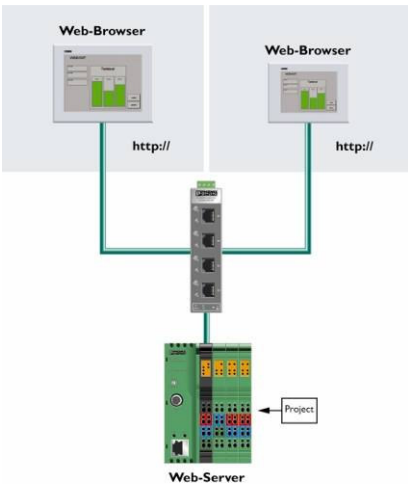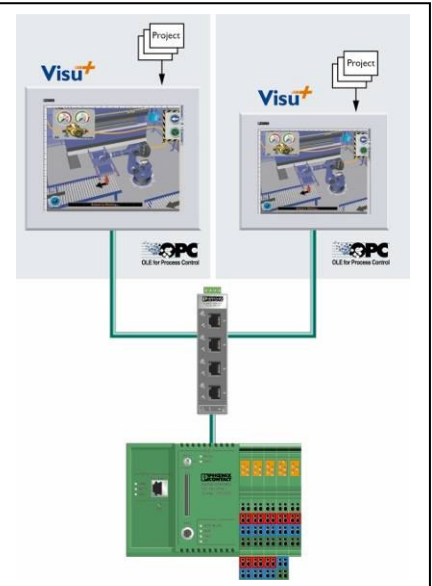
Innovative products are not the only deciding factor for joint success...   ...how we treat each other is another.
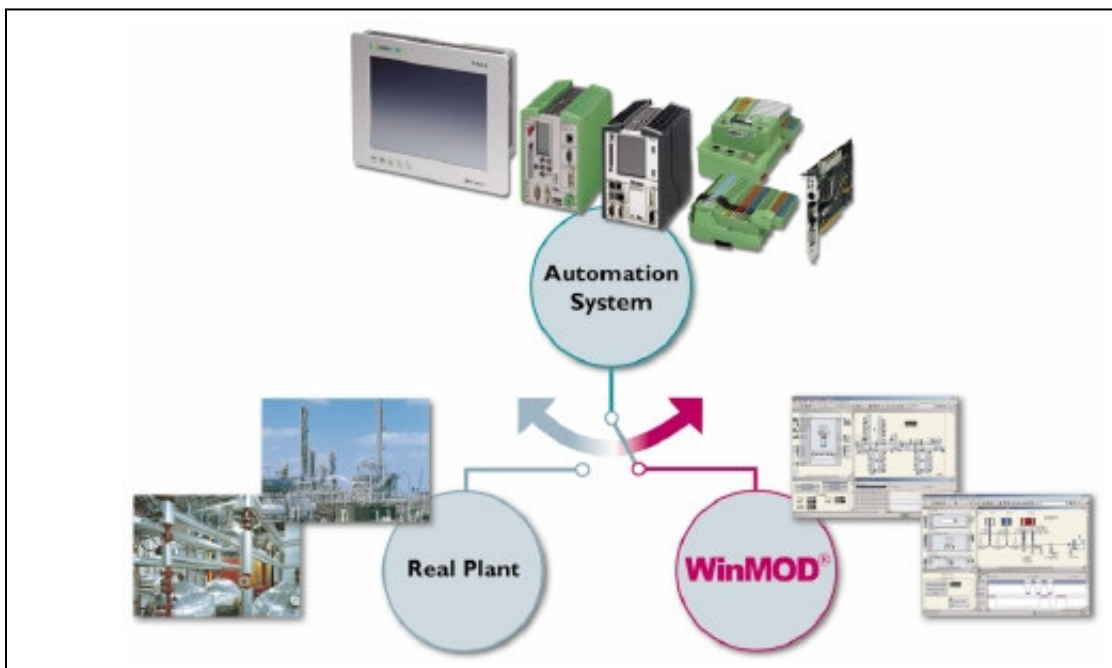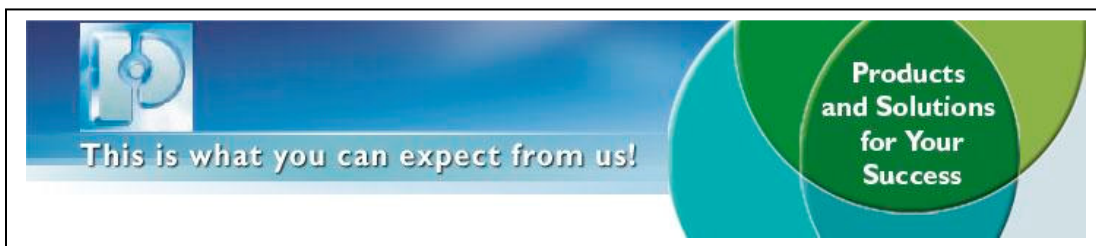
This is what you can expect from us!

Products and Solutions for Your Success

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