Telemetry & Remote SCADA Solutions

Make the most of your remote assets

Schneider Electric
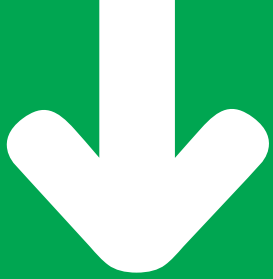
The Challenges of Managing...

Telemetry and SCADA systems allow you to monitor and control field operations across a widely dispersed infrastructure. From simple reservoir level measurement to well pad optimisation integrated with ERP, these systems are constantly challenged by emerging regulations, rapid technology change and industrial trends.

Enterprise
Asset Management
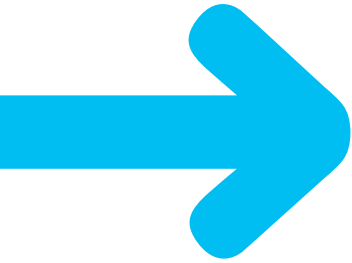Integrated Systems

Control Room
Operation
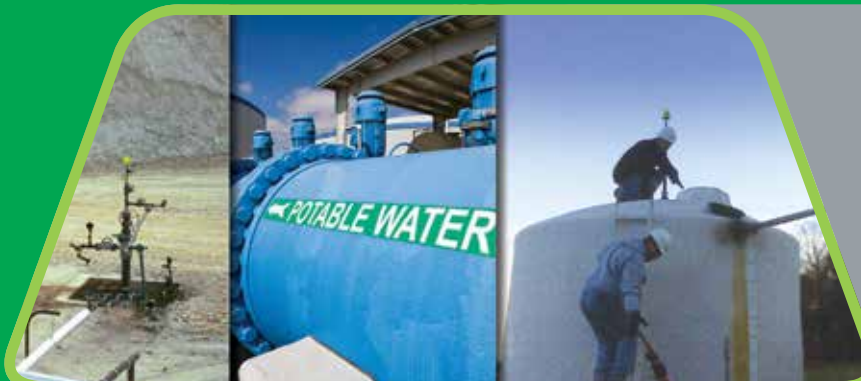
Process
Monitoring &
Automation

Field
Devices

...Remote Operations

Adaptation

As our world becomes increasingly wireless, from communication devices to entertainment equipment, so too is the trend for managing processes in difficult and/or hazardous locations. While reliable connectivity, autonomous power and ease-of-use are just three of a long list of benefits that wireless has over traditional wired solutions, significant cost and maintenance reductions are often influential drivers.

Security

Few industries require security more than those concerned with the protection of natural resources and the management of energy. While the use of remote monitoring and control in critical processes continues to evolve, so does the need for enhanced security. Whether it is a measured value at a field instrument or the data path to the host, informational integrity can only be realised through focus on end-to-end data security.

Regulatory requirements

Increased attention to safety and compliance with emerging regulations are major design factors for telemetry and SCADA systems today. Governments on both federal and municipal levels continue to push for higher standards in water quality, affordable energy, and the well managed distribution of both in a manner that sustains our natural environment.

Process optimisation

Without data there is no process knowledge and without effective measurement and information transfer there is no data. Remote process optimisation can only be effective when all necessary points are monitored and all data safely transferred to stake holders, whether human or machine.

Schneider Electric helps you face remote operation challenges with integrated end-to-end Telemetry and Remote SCADA Solutions that improve safety and security.

Leveraging a proven track record in a wide range of industries and expertise in the areas of instrumentation, control and data acquisition, wireless communication and IT, Schneider Electric Telemetry and Remote SCADA Solutions can help make the most of your remote operations and assets.

> Controlling cost of ownership

Process monitoring and telemetry operations at remote sites are commonly spread across a wide area with equipment being exposed to harsh environments, making access difficult. In comparison to capital costs, the installation, operation and maintenance of these systems is often the most significant overall expense factor in the long term. With scalability, flexibility and ease-of-use in mind, Schneider Electric's telemetry and SCADA solutions are tailored to help lower this total cost of ownership.

Rapid deployment wireless instrumentation

Accutech field instruments are easy to install being self-contained with power, radio and sensor. With the elimination of cabling, trenching and conduit, deployment costs are reduced by up to 75% relative to wired alternatives. Together, the high performance, long reach, license-free radio and long lasting battery reduce support costs while delivering valuable data.

• Easy-to-install wireless instrumentation

Easy-to-use data radio solutions

Trio licensed and license-free data radios offer versatile wireless field networking solutions for point-to-point and point-to-multipoint networks. High performance is offered in each of a wide range of cost effective product lines including frequency hopping radios, simplex and half duplex remotes, redundant base stations and store and forward repeaters. Trio's flexible feature set and intuitive design enable greater choice in network functionality and ease of use.

Flexible and efficient Smart RTUs

SCADAPack Smart RTUs offer flexibility through a wide range of features and options, and are easy to network, program and maintain. They also control operating costs by keeping you out of the field with online configuration and editing of logic applications either through a dedicated development environment or through our SCADA Expert ClearSCADA host software. Innovative circuitry and firmware designs result in ultra-high efficiency modes that suit the challenges of solar powered SCADA.

• Solar-power installation

%

Reduce power by up to 57% by disabling unneeded peripherals in SCADAPack

Effective and intelligent SCADA host

StruxureWare SCADA Expert ClearSCADA is an innovative, flexible and comprehensive SCADA host platform. From a built in historian to alarm redirection, from object-based templates to multi-developer environments, ClearSCADA is designed to control operational costs through quick deployment and reduced down-time.

SCADA Expert
ClearSCADA 2013 R1

Software for Telemetry & Remote SCADA Solutions
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StruxureWare

• SCADA Expert ClearSCADA software platform

> Secure and reliable SCADA...

Safety and availability are crucial characteristics of critical infrastructure, both being dependent on their resistance to outside forces such as cyber attacks and natural disasters. This especially holds true when considering security for SCADA systems which monitor and control remote operations through a wide array of communications technologies, often choreographed by a central host. At Schneider Electric, our telemetry and remote SCADA solutions incorporate effective security at many levels, from the field to the enterprise.

Protection that starts at the source

Using DNP3 protocol with AGA12-2 message encryption helps to ensure your data is not tampered with over remote connections, from the controller to the SCADA host. With DNP3 Secure Authentication only authorised devices are able to request execution of critical commands such as setting outputs, transferring files, or changing controller configuration.

Security from the control room and remote clients

SCADA Expert ClearSCADA host software is continuously tested against current security regulations and cyber threats. Security-enhanced account and password management let you decide right down to the object level who gets to see and control which data points within a SCADA system. Users or user groups are assigned password protected levels of access for specific features, including configuration, operation, alarms and database navigation. Object permissions are automatically carried over when new instances are created from templates that provide efficient scalability with reduced errors.
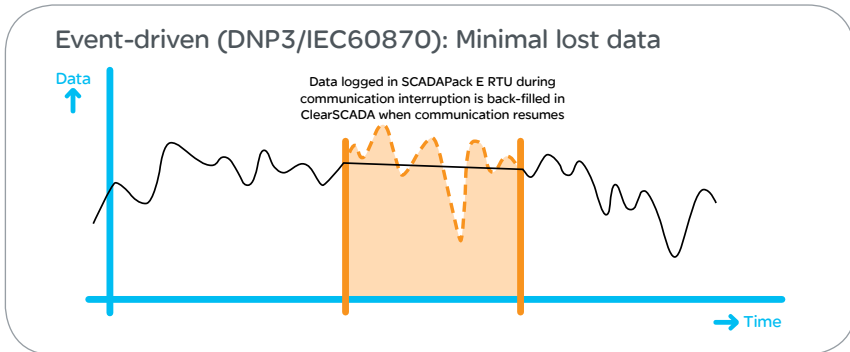
...across wide area networks

When it comes to managing multiple remote sites, the communication of data between field operations and the control room becomes even more crucial in making operational decisions. Schneider Electric's telemetry and remote SCADA solutions include functionality that helps in ensuring your data is delivered reliably, securely and with minimal loss.
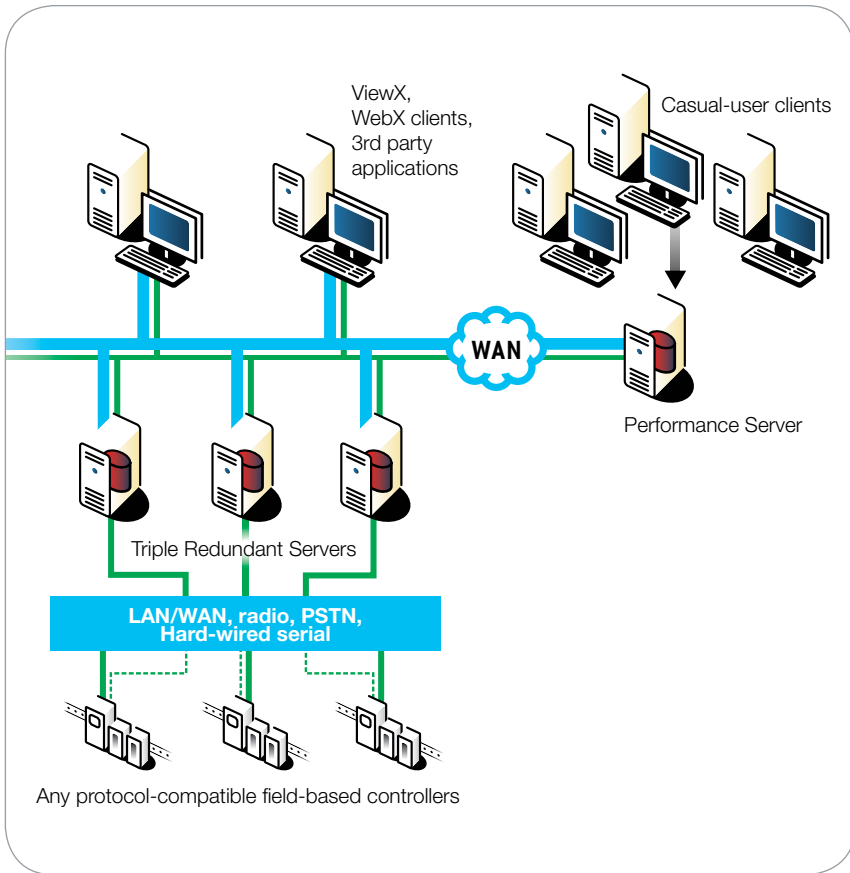
Reduce risk of data loss

Whenever remote data points change, the SCADAPack E Smart RTU stores a time-stamped DNP3 event which remains in its data queue until polled or reported. This allows the SCADA Expert ClearSCADA host to poll less often and still obtain a continuous record of data history even when communication links go down.

Event-driven (DNP3/IEC60870): Minimal lost data

Data

Data logged in SCADAPack E RTU during communication interruption is back-filled in ClearSCADA when communication resumes

Time

• Enhanced data reliability during communication interruptions

High level of data availability

SCADA Expert ClearSCADA offers dual or triple redundant servers, disaster recovery sites and remote performance servers to enhance data availability. Even LAN/WAN links and connections to remote controllers can be configured for redundant paths over different media.

Reliable wireless connectivity

SmartPath™ technology used in Trio radios lets system designers create a network topology that offers alternative radio link paths. The result is enhanced connectivity and redundancy without the message latency common in more traditional MESH technologies. Together with an effective range of models and performance enhancing features, Trio radios improve the reliability and security of data radio connections.

ViewX, WebX clients, 3rd party applications

Casual-user clients

WAN

Performance Server

Triple Redundant Servers

LAN/WAN, radio, PSTN, Hard-wired serial

Any protocol-compatible field-based controllers

• Redundant servers maintain data availability

> Gain operational efficiency from field...

Whether close by or at a great distance, your assets provide a wealth of information that is crucial to operational efficiency. From simple measurements to historical logs, every bit of information is valuable. The easier it is to capture the more likely your operations team will make use of it. Schneider Electric's telemetry and remote SCADA solutions allow you to transform data into directly usable information through seamless integration of assets, from the RTUs in the field to your centralised business systems.

Easy access to business systems

SCADA Expert ClearSCADA is an open object-oriented platform with a rich suite of industry standard interfaces including SQL (ODBC or OLE-DB), OPC and .NET giving any reporting package, such as an MIS or ERP business system, easy access to the real-time database, alarm/event journal and historian.

• Access to business systems
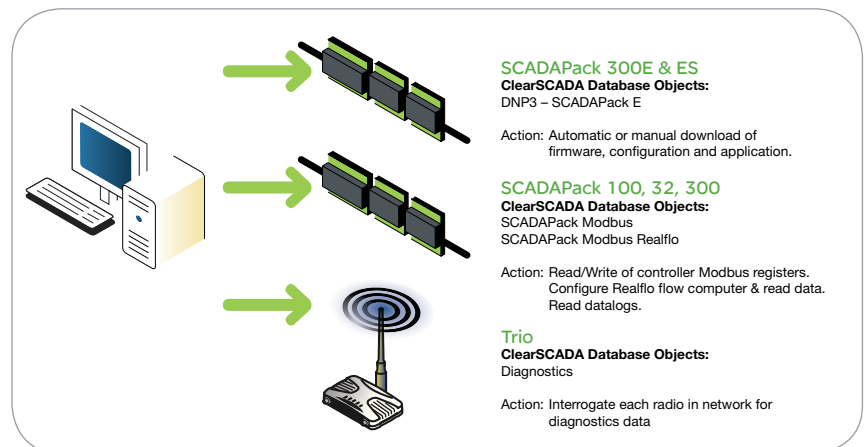
True mobile access

SCADA Expert ClearSCADA Mobile provides real-time remote access to critical SCADA data, allowing system users to monitor performance while "on the move", improving staff productivity and enhancing overall system performance. ClearSCADA Mobile gives remote users access to real-time alarms and events, including remote alarm acknowledgement, as well as historic trends and lists.
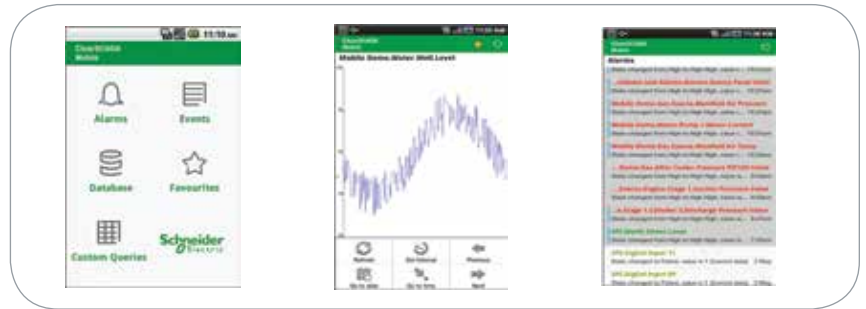
Automatic recognition, less configuration

Tight integration across telemetry and SCADA network components can yield significant operational advantages if the host software is included. SCADA Expert ClearSCADA offers pre-configured templates that are easy to setup and SCADAPack-specific objects that require less configuration while providing access to more detailed data. With the ability to detect a newly added SCADAPack Smart RTU, ClearSCADA can automatically download the required control applications and configuration. Subsequently, with automatically synchronised clocks, SCADAPack data logs are seamlessly retrieved into the ClearSCADA historian.

A very powerful result of the object-based architecture is that any changes to the SCADA Expert ClearSCADA database can be made online, thereby minimising the effects of operational stoppages.

SCADAPack 300E & ES
ClearSCADA Database Objects:
DNP3 – SCADAPack E

Action: Automatic or manual download of firmware, configuration and application.

SCADAPack 100, 32, 300
ClearSCADA Database Objects:
SCADAPack Modbus
SCADAPack Modbus Realflo

Action: Read/Write of controller Modbus registers. Configure Realflo flow computer & read data. Read datalogs.

Trio
ClearSCADA Database Objects:
Diagnostics

Action: Interrogate each radio in network for diagnostics data

• Configure field devices from central location

...to enterprise
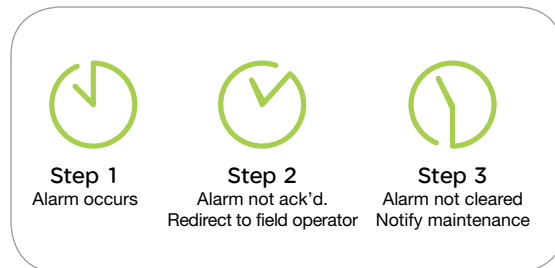
Real-time monitoring of network health

Effective networks offer efficiency and reliability when they are working properly, but to know when this is occurring, you need real-time access to network health information across the system. When used with SCADA Expert ClearSCADA, our products offer direct access to network communication statistics from RTUs, data radios and field instruments as well as specific health indicators like battery status, RSSI and temperature.

• Network health monitoring

Escalated notification of alarms

Configured alarms are the most important aspect of any process monitoring but are only useful if the notification gets to the right person or machine. SCADA Expert ClearSCADA host software and FlowStation controllers provide escalated notification based on a wide range of configuration variables. If an alarm is not acknowledged within a set period of time by the console operator it can be automatically passed to the field operator. If that doesn't work the alarm is forwarded to maintenance personnel and so on. Web clients, SMS and Blackberry browser interfaces are available to provide remote access to alarms.

Step 1
Alarm occurs

Step 2
Alarm not ack'd.
Redirect to field operator

Step 3
Alarm not cleared
Notify maintenance

• Alarm redirection process

> Minimise risk by improving safety...

Natural gas production and distribution, the supply of potable water and the handling of wastewater, the transfer of electrical energy across great distance; these are industries with increasing requirements for operational safety, compliance with environmental regulations and the overall security of assets. Schneider Electric's telemetry and remote SCADA solutions address these crucial requirements through flexible, end-to-end integration and comprehensive feature sets.

Prevention through knowledge

Accutech wireless instruments provide crucial information by monitoring process variables that were previously out of reach for physical and/or cost reasons. Whether it is gas leak detection with an acoustic monitor, tank level measurement with the SL10 submersible or door/hatch access detection with the SI10 switch input device, Accutech provides the enhanced process knowledge you need to mitigate the effects of crucial incidents.


• Gas leak detection with Accutech acoustic monitor

...and regulatory compliance

Towards compliance through enhanced data security

For applications requiring traceability, Schneider Electric's remote SCADA solutions provide extensive data logging features to help ensure regulatory requirements for history can be met. SCADAPack Smart RTUs offer periodic or sudden burst high-speed data logging along with both onboard and external memory options. The SCADAPack E Smart RTUs, when used with the DNP3 protocol and SCADA Expert ClearSCADA, offer automatic data back-filling in case the communications network to the host is interrupted.

Internal Memory   OR   **External Memory USB** (Modbus-centric only)
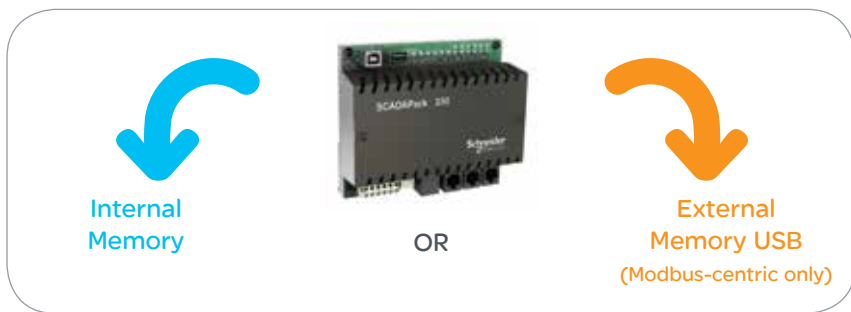
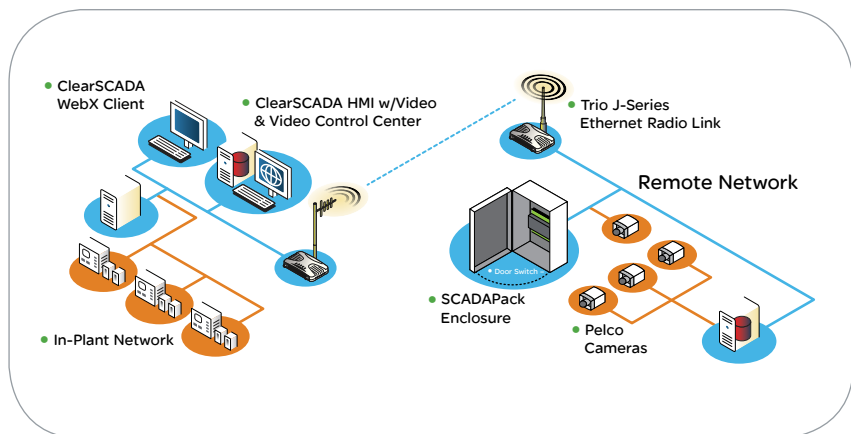• Data logging memory locations

Assurance through certification

Accutech instruments, SCADAPack Smart RTUs and Trio radios are designed for installation in remote environments with high humidity and extreme temperatures. Our products are tested for hazardous and/or explosive-designated areas, while our gas flow computers are tested to API 21.1 standards and approved for custody transfer applications.

• Extreme installations

Event-driven video security

SCADA Expert ClearSCADA's integrated video reporting engine adds video monitoring to your asset management applications. This cost-effective solution preserves network bandwidth by using event driven video clips triggered at the RTU.

• ClearSCADA WebX Client
• ClearSCADA HMI w/Video & Video Control Center
Trio J-Series Ethernet Radio Link
Remote Network
• SCADAPack Enclosure
• Pelco Cameras
• In-Plant Network

• Cost effective video reporting engine

> Making the most of your production assets

Our telemetry and remote SCADA solutions go beyond remote monitoring and control by providing you the means to quickly develop and maximise the performance of your production assets. Specifically in oil & gas, Schneider Electric has a solution that optimises your investment by extending well lifetime and increasing production.
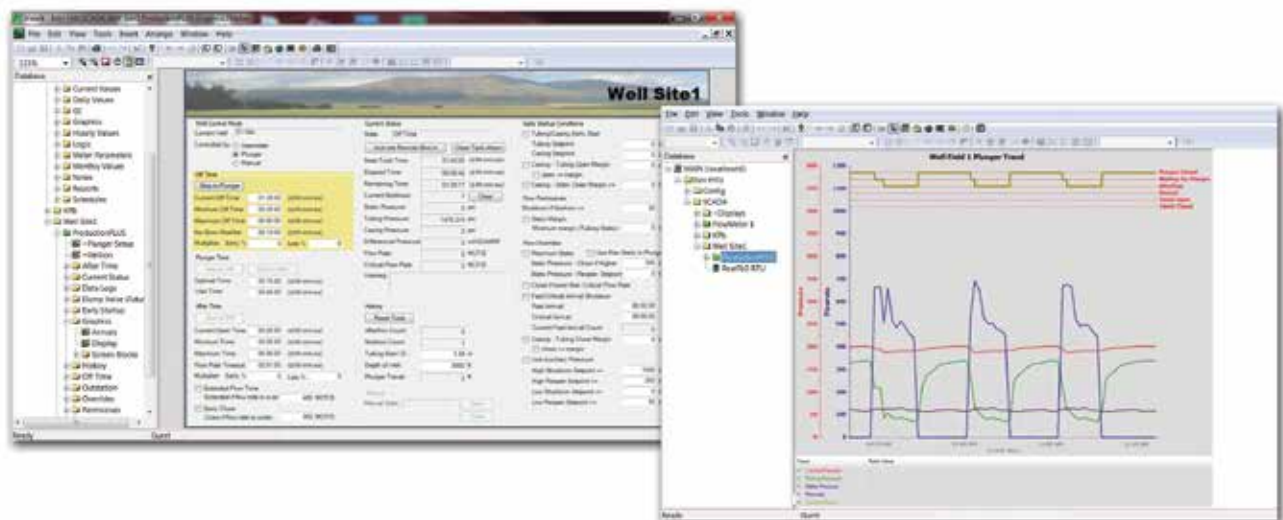
Well production optimisation

ProductionPlus is an integrated hardware and software solution for gas production optimisation. Used in single well or multi-well pads ProductionPlus measures and controls gas flow while monitoring separated liquids in storage tanks. Flow control modes that extend well life include manual, intermitter and plunger lift.

This combined control and optimisation platform runs on a SCADAPack gas flow computer while offering an easy to configure interface via local display panel, remote PC, or at the SCADA host. Many features are integrated and configurable, such as well shutdown based on storage tank levels, while others may be introduced using user developed logic.

The value of ProductionPlus is further enhanced when combined with our comprehensive suite of SCADA products. For measuring wellhead pressures and tank levels Accutech wireless instruments are seamlessly integrated into the ProductionPlus platform. Trio data radios provide connection from each well pad to the SCADA Expert ClearSCADA host which includes pre-packaged ProductionPlus templates that monitor each well and provide high resolution trending and plunger arrival history.

From operator to the asset manager, benefits are seen at many levels:

- **Operators** – local display provides access to wells from one point.

- **Automation Technician** – access to control and EFM data using standardised templates for rapid deployment.

- **Production Supervisor** – regulatory compliance and timely production data for delivery commitments and forecasting.

- **Production Analyst** – high resolution operational measurements, detailed plunger arrival log and proven optimisation methodologies.

- **Asset Manager** – new gas opportunities maximised during flow-back period with same day wireless measurements.

Telemetry & Remote SCADA Solutions

Applications

Oil & Gas
- Wellhead automation & management
- Production optimisation & well life extension
- Gas flow measurement
- Tank battery management
- Salt water disposal wells
- Pipeline monitoring of compressor station control
- Wireless sensors and communication
- Flare monitoring
- Pressure monitoring
- Corrosion & leakage monitoring

Water & Wastewater
- Wireless communications
- Well monitoring & control
- Water quality monitoring & data logging
- SCADA software
- Pumping station controller
- Pressure distribution system
- Irrigation monitoring
- Storm water monitoring
- Lift station controller

**SCADA
ClearS**
Host softwa
application temp
processes and O&
integration to Acc
Trio pr

Realflo
Gas flow
measurement
software and
hardware solutions

Product
Integrated
and software
increases safe
environmental c
extends

Accutech
Wireless instrumentation
helps to avoid costly hard-wired
installations with self-powered,
easy-to-install field units

SCADA
Smart RTUs and ga
combine the m
communications
an RTU with the
data-logging p

Enterprise
Asset Management
Integrated Systems

A Expert
SCADA
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Control Room
Operation

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hardware
solution that
ty, improves
ompliance and
well life

FlowStation
A complete pump
station controller
designed for use in
storm and wastewater
lift stations and pump-up
applications

Process
Monitoring &
Automation

Pack
s flow computers
onitoring and
capabilities of
processing and
ower of a PLC

Trio
Industrial-strength data
radios bring ease-of-use,
flexibility and advanced
performance to demanding
SCADA applications

Field
Devices

Make the most of your energy

Schneider Electric

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