Measurement Data: from Well to Awareness
INTRODUCTION

eXLerate is a software platform developed specifically for flow metering supervisory systems within the oil and gas industry. eXLerate provides an automation solution for many oil and gas applications, such as: Local or corporate custody transfer flow measurement systems in refineries or pipelines, crude gathering stations, meter calibration facilities, truck or ship loading terminals and tank terminal automation.

In the critical process of oil and gas custody transfer, reliability is essential. eXLerate offers powerful HMI tools to control and manage all flow measurement data at the most detailed level. eXLerate offers fully synchronized and integrated redundancy, guaranteeing a consistent environment at all times.

Both end users and system integrators share the need for accurate, reliable and cost-effective automation solutions. eXLerate lives up to their highest requirements.

ADVANTAGES

✓ Accurate and flexible communication with measurement equipment
✓ Searchable measurement and audit historical data
✓ Sophisticated and flexible oil and gas production reports
✓ Extensive set of flow and fluid property calculations
✓ Embedded Virtual Flow Computing (VFC) functionality
✓ Integrated instrument Validation & Calibration functionality
✓ Integral part of the familiar MS Office™ environment
The End users that benefit from eXlerate range from oil & gas companies through shipping companies, pipeline operators, tank farm owners and depot terminal owners worldwide. eXlerate improves operation and maintenance of flow measurement systems within their complex arena of different applications.

Our software offers end users key benefits in terms of operational & maintenance cost. There are no steep learning curves to overcome, as the familiar Office oriented development environment is the only tool you need for maintenance of your system. With its scalable architectures, the software can be scaled to fit your needs, from a single laptop to a fully redundant client-server based system.

Highly integrated functionality

Solutions realized with our software offer a highly integrated approach, for all supervision & visualization tasks: from data retrieved from intelligent sensors, flow meters and other field equipment right through to alarm & event management, flow calculations, fiscal reporting, data communication, diagnostics & performance monitoring, validation software and accounting and more. eXlerate brings everything together in one comprehensible HMI.

Product and application knowledge

Spirit IT, as developer and provider of eXlerate software, possesses technical expertise, experience and in-depth knowledge of the wide variety of applications. Due to this deep understanding of our industry, Spirit IT provides excellent technical support to end users, system integrating partners and engineering contracting companies worldwide.

We have implemented a wide range of applications for metering supervisory control, virtual flow computing, analyzer validation & calibration, meter calibration facilities, test benches, depot & terminal automation, vessel & truck loading systems, tank farm management, gas (pipe) network management solutions, and performance & condition based monitoring systems.

The combination of our state-of-the art product software and the in-depth knowledge of our engineering & support group on almost any oil & gas area offer our customers an excellent and long-term solution basis for their systems.
SYSTEM INTEGRATOR BENEFITS

With our open, consistent and comprehensive development environment, an application engineer has full control of his software configuration. Powerful built-in wizards & tools, its many features and ready-to-run sample projects will get you quickly up and running at full speed.

Even for a redundant, client-/server based solution only one single application has to be developed, in just one single application workbook file. The product software automatically recognizes if the running application is designated as client, duty, or standby server.

The real-time database, fiscal report archives, trending data, all relational databases, operator commands, and even logic are synchronized between servers by the standard product software without any programming. This introduces a tremendous time-saving benefit in terms of engineering effort needed for redundant systems as nothing has to be explicitly configured by the application engineer.

**Single tag database**

It is no longer required to maintain data points in different software components like HMI, reporting tool, communications driver, script & logic processor etc., which further reduces the engineering effort, or even more important, the integration and test phases in your project.

**Consistent environment**

All functionality for your project can be realized from our powerful eXLerate spreadsheet oriented development environment. Display pages, report templates, user dialogs, flow- and other calculations, animations, databases, scripts, etc. are all defined from a familiar, consistent and user-friendly environment.

**Technical support team**

Our technical support team is ready for personalized technical support, not only providing support for our product software, but also for your own applications under development. We even can create your own personal space at our website for flexible and global software support.

**Scheduled training programs**

Spirit IT has training programs available, for beginning HMI engineers up to expert level engineers. Trainings include solution oriented technical training beyond the product software. Training courses are personalized for your own specific needs & knowledge level to achieve optimum results.
VISUALIZATION / HMI
SOFTWARE FEATURES

eXLerate has rich visualization and control functionality in a user-friendly spreadsheet oriented development environment to facilitate your full-fledged applications. This brief summary highlights some key features.

Visualization & animation
Information is presented in a rich & multi-lingual, graphically animated environment, typically with embedded chart objects such as line charts, pie-charts etc., and with a comfortable library of user objects.

Multiple security levels assigned to various users prevent accidental mistakes or unauthorized access.

Data communications
All embedded data communication in the application is defined on a single worksheet containing protocol and poll definitions. In the tag database worksheet all incoming and outgoing data are collected and made available for display and further processing.

A built-in protocol analyzer allows for scrutinizing of data messages from and to external devices. Data communication may be simulated to provide an easy test environment.

Supported protocols include Modbus (all dialects), OPC, HART, ASCII and more.

Alarm management
Both a programmable alarm summary with current alarms as well as an alarm history is available. Events and alarms are stored on disk for analysis in a later stage, optionally in a MySQL database.
Trending
Highly customizable real-time and historical trending allow for permanent storage of process parameters and derived data. Multiple pens may be displayed simultaneously in a single trend graph. Available disk capacity is monitored to prevent disk overflow.

Reporting
Reports are an integrated part and may be automatically generated, or on (manual) event, printed, and stored in an Excel workbook or HTML output format, and e-mailed to a user. Report templates are easily maintained by the end-user in a convenient Excel format.

Relational database support
An embedded database server is available with ready-to-use functions for easy integration. Databases may be used to store metering data, validation data, parameters, settings, recipes, user-defined information, etc.

EXLERATE SCADA/HMI

- I/O
- Trending
- Reporting
- MySQL
- Alarms
- Animation
- Multilingual
- Web support
- VBA
SCREENS OF EXLERATE APPLICATIONS
OIL & GAS INTEGRATED FEATURES

eXLerate’s features for the oil & gas industry is the powerful set of integrated tools, functions, add-in libraries, and application sheets that reach far beyond common visualization and control software.

This additional functionality in eXLerate allows you to create full functional applications for even the most complex operator environments in the oil & gas industries.

Gas & liquid calculations

✓ AGA3, AGA5, AGA8, AGA10. Compliant with AGA7, AGA9, AGA11.
✓ GPA 2172 / ASTM D3588, TP15, TP16, TP25, TP27.
✓ IAPWS-IF97 steam and water tables.
✓ NIST-1045 for Ethylene, API 11.3.2.1 Ethylene (API-2565).
✓ ASTM D1550.
✓ Time & Flow weighted averages, periodic time series. Accurate period & accumulative totalizers and reporting.
✓ Dynamic viscosity, isochoric heat capacity, isobaric heat capacity, isentropic exponent, energy, entropy, and many other data.
✓ Linearization curves for correction of calibrated meters.
✓ Proving, through flow computer, or directly in the application.
✓ Batching, batch control, and associated batch reporting.

All flow metering calculations are available in highest 64-bits IEEE double precision floating point format. Calculations are available for DTI approved implementation of full-fledged Virtual Flow Computer applications.

Validation & calibration support

Real-time verification of field devices, such as field transmitters, with audit trails and database storage, and with support for As-found/As-left validation can be integrated in the application.

Performance monitoring

Ultrasonic gas and liquid meter diagnostics & performance monitoring (VOS footprint charts, VOS ratio chart, gain & status monitoring etc.), and Condition Based Monitoring technology is available for most manufacturers.

Virtual printer management

MID approval on retrieval, storage, printing & processing of fiscal flow computer reports is available, with processing of flow computer and other report data. Report data can be easily integrated at the application level.
SCALABLE ARCHITECTURES

eXLerate supports an integrated client-/server technology with which distributed system architectures can be implemented.

For highly critical systems, facilities for server redundancy are essential, where a single point of failure may not lead to a system failure.

In many facilities, one standalone eXLerate based application running on a single PC is all it takes to create a solid, reliable HMI solution with more than adequate functionality.

We also offer, as next step up, a scalable architecture with unrivalled and product supported redundancy with fully synchronized servers and clients.

A redundant eXLerate system may consist of multiple servers and clients, where each server or client can act as operator station. A Client computer automatically connects to the Duty Server.

I/O from & to devices
Signals from field devices may be obtained from various servers, and shared with other computers.

Parameters and settings
When an operator modifies an alarm limit or PLC setting at a client or server, all computers and pertaining field devices are updated.

Alarm summary and history
All alarms and events are maintained by the duty server. All operator commands, such as alarm acknowledgements, are automatically processed by the duty server.

Reports & historical trends
Reports & historical trends are automatically synchronized from the duty server, and are stored on all servers. Client computers do not store data locally but retrieve reports and trend data from the duty server.

Operator commands & logic. Operator commands and control logic are automatically synchronized between connected computers.

MySQL database tables
Data for redundant tables is stored at the Duty server and automatically synchronized at all other server computers.
Spirit IT meets customers' needs with a wide range of services and support facilities. These range from licensing of software products based on our eXLerate software integration platform, right through to turnkey implementation of complete metering and automation projects.

**Product licensing for integrators**
System integrators can purchase licenses to use our eXLerate software integration platform and toolkit in their own applications and projects. Specialist application engineering support can be provided on either a turnkey or project basis, including development of product software for specific applications and markets.

**Training, design & engineering**
We provide a wide range of services to support the work of system integrators and hardware manufacturers, ranging from strategic cooperation to consultancy, application development support, training of application engineers into eXLerate specialists and project management services matched to customers' specific needs.

**Service & support for specific projects and applications**
We can offer required services to support system integrators and end-users in the engineering, integration and implementation phase of their specific projects and applications.

Our international partners in various countries actively assist with our global technical support network, including with on-site project activities.

**Back-office & online services**
With a 'your-problem-is-our-problem' approach, we extensively support system integrators internationally with our in-house expertise and experience.

Our on-line website support, both for end-users and system integrators, enables upgrades of your 'evergreen' licensed product software at all times free of charge.

**Business partner activities**
Working closely together with our system integrating business partners, our support can be extended to sales oriented activities on behalf of our partners, such as presentations for end-users, exhibitions, sales meetings, technical and bid clarification meetings as well as site surveys.

**Custom development and implementation**
We can handle the development of dedicated software applications, including design, implementation, test and after-sales support, as well as special eXLerate functionalities and applications.
eXLerate has a license model with various editions based on number of I/O tags. There are a number of functional editions available, in combination with various additional options.

The following editions are available in eXLerate:

**Standalone Edition**
A Standalone Edition is a version of eXLerate running on a single machine. A Standalone Edition communicates with external equipment via serial or Ethernet interfaces.

**Server Edition**
A Server Edition runs in a server/client environment, and is able to communicate with external equipment. A Server can run as a Duty Server, or as a Standby Server. There can be multiple Servers, where one Server is designated as Duty; the other Servers are Standby servers.

**Client Edition**
A Client Edition runs in a server/client environment, and is connected to a Duty Server via one or more networks. A client allows full control & operation, where all data and reports are obtained from a Duty Server.

**License size**
For each Edition, the following sizes in terms of I/O count are available:

<table>
<thead>
<tr>
<th>Edition</th>
<th>I/O Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lite</td>
<td>75</td>
</tr>
<tr>
<td>Basic</td>
<td>150</td>
</tr>
<tr>
<td>Standard</td>
<td>300</td>
</tr>
<tr>
<td>Extended</td>
<td>750</td>
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<tr>
<td>Pro</td>
<td>1500</td>
</tr>
<tr>
<td>Plus</td>
<td>3000</td>
</tr>
<tr>
<td>Large</td>
<td>6000</td>
</tr>
<tr>
<td>Huge</td>
<td>32000</td>
</tr>
<tr>
<td>Unlimited</td>
<td>Memory dependent</td>
</tr>
</tbody>
</table>

Redundant I/O tags count as only one (1) single tag within our license model. All sized editions have full support of unlimited calculation tags.

**License options**
There are a number of options for communication protocols, trending, MySQL, Virtual Printer Management, VFC metering streams, flow calculation libraries etc.

**Runtime Mode**
eXLerate end-user licenses have a Runtime Mode enabled: Runtime, Development, or both:

**Runtime-Only**
A Runtime-Only license is a license with the restriction that the user is not able to modify or inspect the application configuration.

**Development-Only**
A Development-Only license is a license with which the user can modify or inspect the application, but after the built-in timeout of one (1) hour, communications are terminated.

**Runtime+Development**
This is a full-featured license, where modifications can be made on a runtime system when the operator has sufficient security rights.

**Maintenance dongle**
eXLerate supports the use of a Maintenance Dongle, with which an engineer is able to enter development mode on a system with Runtime-only rights. The device is available for Approved System Integrators.

**Runtime dongle**
As of eXLerate rev. 02.10.126 we actively support dongle based licenses, so that a license can be easily transferred from one system to another.

**Minimum requirements**

**Hardware** Pentium IV @2GHz, 1GB RAM, 2GB HDD.

Spirit Innovative Technologies develops innovative solutions that result in economical, highly reliable and sustainable measurement and control systems for the global oil & gas industry.

The Spirit IT team is driven by a passion for technology and an uncompromising commitment to quality. We take the initiative and responsibility for all our systems and solutions.

By constantly challenging ourselves to think outside the box, we arrive at customized measurement and control solutions for our multinational clientele, whose specific needs are our top priority.

Spirit IT was established in 2001 and our hardware, software, systems and solutions have been successfully implemented in more than 60 countries worldwide.