Elster Group

Elster Group is a world leader in Advanced Metering Infrastructure (AMI), integrated metering and utilization solutions to the gas, electricity and water industries. Elster’s high quality AMI and Automated Meter Reading (AMR) products, systems and solutions reflect the wealth of knowledge and experience gained from over 170 years of dedication to measuring precious resources and energy. Elster provides world class solutions and advanced technologies to help utilities more easily, efficiently and reliably obtain and use advanced metering intelligence to improve customer service and enhance operational efficiency. Elster’s AMI solutions enable utilities to cost-effectively generate, deliver, manage and conserve the life-essential resources of gas, electricity and water. The group has over 7,500 staff and operations in 38 countries, focused in North and South America, Europe, and Asia. For additional information visit www.elster.com.
With Integrated Metering Solutions we develop innovative concepts to provide a rapid, effective and constructive solution for your needs: custody transfer measurement systems for natural gas measurement.

We thrive on complex projects; a big transaction to us means a big opportunity to measure your flow, help you manage financial risk and offer you more relief. Elster Instromet combines customized engineering capabilities, reliable products, and best-in-class consulting with project management. Our project management is fulfilled with industry expertise and life-cycle services.

We design and manufacture our systems in-house, so we can integrate all parts seamlessly, maximize measurement accuracy and minimize risk. All our products can be produced to global product and fiscal metering standards.

All this combined with our continuous monitoring and validation solutions will give you peace of mind, 24/7. So you can relax and focus on your core business.
Elster-Instromet is a worldwide market leader in energy flow measurement and regulation for the natural gas sector. We offer peace of mind: maximum measuring accuracy with minimum risk and maintenance costs. That is the strength of Integrated Metering Solutions.
Elster-Instromet designs and supplies client-specific systems for the measurement and regulation of gas. As an Original Equipment Manufacturer (OEM) we create synergy by combining our own components in an integrated system.

From simple single-stream installations to complex stations that measure millions of cubic metres of gas passing through them at high pressure. This is precisely where we offer added value, by taking complete responsibility for the entire process of product and system engineering. From concept to completion, with visible results.

**We differ by providing low cost of ownership through:**
- Keeping responsibility and risk with one single party.
- Lowering measurement uncertainty.
- Maximizing reliability of measurement results.
- Supporting with global services.
**History**

The history of Elster-Instromet goes back to 1848, the year in which the pioneers of the company that was then called Elster developed the first metering solutions for gas. In 1965, Instromet started operating in the same sector and played an important role in developing the metering technology for the exploitation of Slochteren, which at the time was thought to be one of the world’s largest gas deposits. The following years of technical innovation resulted in high quality metering and regulation systems for gas in both companies. Since 2005, the two companies merged into the Elster Group, a world leader in the development and production of integrated metering technologies and application solutions in the field of gas, water and electricity. The group has more than 7500 employees and is active in 38 countries.

**Ambition**

With more than 170 years of experience we understand better than anyone that a small change in measurement accuracy can have a significant effect on your profitability. This is why it is the ambition of our organisation to constantly strive to lift gas metrology to a higher level. It is the driving force behind the enthusiasm and entrepreneurship with which we help you to achieve your goals. Moreover, it is an ambition that has not gone unnoticed and has resulted in our products functioning as the benchmark for world-class calibration facilities of other gas testing systems.

**Passion**

Design engineers have numerous challenges, but you cannot be a global leader if you do not have real passion for the technology. Of course you always look for the maximum return for your business, no matter what the risks are. Only a true expert with knowledge and extensive experience can advise you on how to take optimum advantage of all the opportunities at play, and help you find the balance between an affordable solution and the value of uncertainty contributors. Our people are inspired by your measuring needs and invest greatest effort, in all possible conditions to help achieve maximum results.

**World’s largest test and calibration centre**

From assisting with gas measurement 50 years ago at one of the largest gas deposits at the time (in Slochteren, the Netherlands) we have evolved into a global leader in fiscal flow and energy measurement products, stations and services for the natural gas industry. The world’s largest test and calibration center for natural gas is is Euroloop in Rotterdam (the Netherlands). We are committed partners to the world’s largest test and calibration centers for natural gas like the GL Noble Denton Flow Centre (UK), Euroloop (NL), Westerbork (NL), TCC (Canada) and Pigsar (Germany).
Elster-Instromet has a clear focus. We specialise in measurement and regulation of gas throughout the value chain. From high pressure to low pressure. From gas production to gas supply. This focus helps us to think strategically about a customized solution for your project.
Elster-Instromet combines all of these elements and takes all responsibility for design, engineering, construction and start-up activities off your hands.

Large amounts of natural gas transactions take place every year, prices increase and international trade expands. Obviously this drives a higher demand for measurement accuracy and repeatability. The financial risk associated with measurement error and uncertainties at custody transfer points can be high.

The solution you seek is often the sum of a number of considerations for your specific application: operational and financial requirements, international metrology standards, and a tailor-made design. The more parties get involved, the greater the risk becomes.
Customized Integrated Stations

Besides the development and production of measuring and regulation devices for the gas sector, we design and build complete stations with various components. This means we apply a far-reaching degree of system integration, based on our knowledge from various disciplines. We can supply reliable customised solutions that vary from small to extremely large stations. Typically these solutions include flow meters, valves, regulators, instrumentation, readout devices, flow computers and integrated supervision software. Our mechanical engineering ensures satisfaction in all kinds of complex environments. Our supervisory systems provide a Graphical User Interface, database server and PLC controls, and are typically provided with a redundancy system.

Energy measurement basics

To measure energy flow we need to combine multiple measurements and do various calculations:

- A Turbine or Ultrasonic flow meter measures the volume at operating conditions.
- However, this volume has to be corrected on temperature and pressure under normal or base conditions.
- Since Natural Gas is not an ideal gas, it needs a correction to the non-linear compressibility, which is a function of the gas composition (measured by a Gas Chromatograph).
- Based on the composition the compressibility factors \(Z_n\) and \(Z_b\) will need to be calculated, as will the calorific value of the gas.

\[
E = V_n \cdot H_{s,n}
\]

\[
V_n = \frac{P_b \cdot T_n \cdot Z_n}{P_n \cdot T_b \cdot Z_b} \cdot V_b
\]

- \(V_n\) = Flow rate at normal conditions
- \(V_b\) = Flow rate at flowing conditions
- \(P_n\) = Normal pressure, typically 1.0135 bara
- \(P_b\) = Absolute static pressure of gas at flowing conditions from meter tap
- \(T_n\) = Normal temperature, typically 20 °C
- \(T_b\) = Absolute temperature of gas at flowing conditions
- \(Z_n\) = Compressibility factor of gas at normal conditions
- \(Z_b\) = Compressibility factor of gas at flowing conditions
- \(H_{s,n}\) = Superior Calorific value
- \(E\) = Energy flowrate
Our applications can be found all over the world, in all areas of the natural gas sector, both on shore and off shore:

**Functionality**
- Fiscal metering
- Custody transfer
- Allocation metering
- Pressure regulation
- Flow control
- Odorization
- Filtration
- Temperature control

**Fluid**
- Natural Gas
- Liquefied Natural Gas
- Industrial gases
- Gas to Liquid
- Shale gas

Our customer base includes major industries that use natural gas as a fuel or raw material, like power stations, refineries, petrochemical plants and the GTL industry.
For over 40 years we have delivered integrated metering projects all over the world. With hundreds of skids in cold and snowy areas, hot and sandy deserts and tropical humidity we dare to claim we are experts in building stations in challenging environmental conditions.
Achievements

Shanghai, China

Application
LNG receiving terminal

Description
Metering system for gas custody transfer

Equipment
- Q.Sonic-4 ANSI 600#
- 3 x 16" (DN400) + 1 x 6" (DN150)
- Inlet / Outlet Headers – 36" ANSI 600# RF
- Metering Runs – 16" ANSI 600# RF
- Metering Panel
- Analyzer Shelter (GC)

Operating conditions
- Pressure 60 to 90 Bar = 882 to 1323 psi
- Temperature 10°C to 30°C = 50°F to 86°F
- Flowrate 84,360.00 to 1,180,000.00 Nm³/h
Raz Az Zawr, Saudi Arabia

Application
High pressure transmission line

Description
Sales gas metering skid for custody transfer

Equipment
- 2 Ultrasonic meter runs 16"-600# (DN 400) with double z-configuration and motor operated valves.
- 2 Flowcontrol valves 12"-600# (DN 300)
- Outlet header 20"-600# (DN 500)
- Station control panel with 2 flowcomputers
- 1 Analyser shelter with gaschromatograph and moisture analyser

Operating conditions
- pressure 66 Bar = 960 Psi
- temperature 150°F = 65 ºC
- flowrate 197 MMSCFD or 220,334 Nm³/h

Special service
Black powder application
Greece - Turkey
Application
Border metering station

Description
Custody transfer metering and flow control

Equipment
- Headers 36”
- 2 Filter separators 68” body
- 3 Meter runs with 20” ultrasonic meter
  Q-sonic 4c and 20” SMRI turbinemeter each
- 3 Flow control valves 18”
- 30” Elster-Instromet ultrasonic meter as by-pass
- Elster-Instromet Encal 3000 gas chromatographs
- 1 Water dewpoint analyser
- 1 Hydrocarbon dewpoint analyser
- 1 Total sulphur analyser
- Elster-Instromet supervisory system
  & flow computers incl. ESD & automatic flow control

Operating conditions
- pressure 80 Bar = 1160 psi
- flowrate 1.48 Billion SCFD or 1,655,251 Nm³/h

Special remark
Project was executed with a Greek partner who was responsible for civil and site construction work. Elster-Instromet took responsibility for filtration, metering and flow control.
near Glewstone in Herefordshire, UK

Application
Transmission control system

Description
pressure reduction / volumetric control Skids
boiler letdown module Skid mounted
(PRS with turbine meter)
Control metering (2 USM’s with FC2000 flow computer)

Equipment
• 18” CCI control valves complete with Quicktrac controllers
  (skid mounted streams)
• 2 off 18” Checksonic 1C for control metering with individual
  FC2000 for flow calcs
• 1 off dual stream PRS for boiler house feed.

Operating conditions
• inlet pressure 65 - 90 Bar = 955 to 1323 psi
• outlet pressure 75 barg = 1103 psi
• temperature 3°C - 22°C = 38°F to 72°F
• flow rate 83,333 - 833,333 Sm³/h
Achievements

Shanghai, China

Application
LNG receiving terminal

Description
Metering system for gas custody transfer

Equipment
- Q.Sonic-4  20” ANSI 900#
- 2 x 20” (DN500) + 1 future run
- Inlet / Outlet Headers – 36” ANSI 900# RTJ
- Metering Runs – 20” ANSI 900# RTJ
- Metering Panel
- Control Panel
- Analyzer Shelter (GC)

Operating conditions
- pressure 61 to 37 Bar = 897 to 2014 psi
- temperature -5°C to -30°C = 23°F to 86°F
- flowrate 84,360.00 to 1,180,000.00 Nm³/h
Mechelen, Belgium

Application
Local distribution station

Description
Double cabine 10”-600# (DN 250), 14”-600# (DN350), 1600 Nm³/h + 1000 Nm³/h Installation made for gas distribution in low and intermediate pressure gas

Equipment
- Filter
- Monitor-active regulating system
- Built in cabinet

Operating conditions
- inlet pressure 1 Bar to 5 Bar = 14.5 psi - 72.5 psi
- outlet pressure 25 to 100 mBar = 0.36 - 1.45 psi
- temperature ground / ambient
- flowrate 1600 Nm³/h + 1000 Nm³/h
Shanghai, China
Application
LNG peak shaving terminal

Description
Metering system for gas custody transfer

Equipment
- Q.Sonic-4  12” ANSI 150#
- 6 x 12” (DN300)
- ENCAL 3000
- Inlet / Outlet Headers – 26” ANSI 150# RF
- Metering Runs – 12” ANSI 150# RF
- Metering Panel
- Analyzer Shelter (GC)

Operating conditions
- pressure  1.05 to 1.55 Bar  = 15.4 psi to 22.8 psi
- temperature  10°C to 30°C  = 50°F to 86°F
- flowrate  50,000.00 to 70,000.00Nm³/h
Horgos & Hongliu, China

Application
West East Pipeline Project no.2

Description
Border Metering system for gas custody transfer

Equipment
• Q.Sonic-4 16” ANSI 600# and 16” ANSI 900#
• 8 x 16” (DN400) and 2 x 16” (DN400)
• ENCAL 3000
• Inlet / Outlet Headers – 36” 600# RF & 28” 900# RTJ
• Metering Runs – 16” 600# RF & 16” 900# RTJ
• Metering Panel
• Analyzer Shelter (GC)

Operating conditions
• pressure 70 to 90 Bar = 1029 to 1323 psi
• temperature 11°C to 22°C = 52°F to 72°F
• flowrate 89,300.00 to 617,100.00Nm³/h
We are actively involved in the thought process around creating solutions with mutual benefits. How can system design intelligently help to save costs and simultaneously reduce measurement uncertainty? Elster-Instromet is very aware of most parameters and variables that can influence the metering process. This is part of our in-depth professional expertise.
When designing a metering station all kinds of factors can play a role to affect measurement to a greater or lesser degree. For example, what technology is most suitable for your application; turbine, ultrasonic or both? How much straight length must be applied? What influence do pressure, composition and temperature have on the accuracy of the measurement? How do you prevent deviation? Elster-Instromet knows better than anyone what matters in the world of accurate and reliable measurement.

This is why we like to partner up with you at an early stage, preferably in the Front End Engineering & Design (FEED) phase. This allows us to focus on your commercial and technical goals and translate them into an optimized design, tight planning and a technically realistic estimation of the budget.
**Characteristics of common fiscal meter choices**

<table>
<thead>
<tr>
<th>Turbine meter</th>
<th>Ultrasonic meter</th>
<th>Turbine &amp; Ultrasonic meter in series</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Highest accuracy &amp; repeatability</td>
<td>• High accuracy &amp; repeatability</td>
<td>• Approved for custody transfer in most if not all countries</td>
</tr>
<tr>
<td>• Highest confidence levels – installed base &gt;100,000</td>
<td>• Includes features for self-diagnostics</td>
<td>• Online comparison of 2 independent measurement principles in series</td>
</tr>
<tr>
<td>• Proven long term stability</td>
<td>• Can be sent to calibration facility</td>
<td>• Avoid common mode failure</td>
</tr>
<tr>
<td>• Can be sent to calibration facility</td>
<td>• Approved for custody transfer in increasing number of countries</td>
<td>• All performance monitoring &amp; self diagnostic advantages</td>
</tr>
<tr>
<td>• Approved for custody transfer in most countries</td>
<td>• No moving parts</td>
<td>• Increased availability and redundancy</td>
</tr>
<tr>
<td>• Also available with TurbinScope diagnostic tool</td>
<td>• Lowest pressure drop</td>
<td></td>
</tr>
</tbody>
</table>

**Station Design**

An intelligent choice of products and configuration leads to greater accuracy and reliability in your metering solution. Elster-Instromet is a manufacturer of both turbine and ultrasonic meters. In practice both meters have proven excellent performance under various circumstances.

We offer even better metering technology by combining turbine and ultrasonic meters in a serial solution. This set-up further reduces measurement uncertainty, thus significantly decreasing financial risk and facilitating major benefits in case of larger flows.
High accuracy and reliability

One well-proved method of such a series principle is the Pay-Check configuration, which means that two meters are continuously in series ('online comparison'). The advantage here is that measurement values are constantly compared and deviations are detected immediately. One meter is used for invoicing of used gas, while the other meter verifies the pay meter.
Lower your Cost of Ownership
The initial investment in a metering station may be a considerable aspect, but it should not be the only decisive factor in a serious cost analysis. Metering systems also need maintenance. Elster-Instromet supplies metering systems in which the performance is monitored 24/7 and automatic problem detection takes place. This means that fewer maintenance visits on-site are required and we can significantly help reduce the Total Cost of Ownership.

Managing Incorrect Measurements
Besides maintenance costs, you can also be confronted with costs caused by incorrect measurements. This table shows the impact of different sizes of stations on the estimated value of uncertainty. You can see how bigger volumes of gas you need to measure can justify the extra investment of double metering technologies. Our years of experience and professionalism can help you find the balance between your Capital and Operational Expenditures to offset the risk of incorrect measurement.

<table>
<thead>
<tr>
<th>Station size</th>
<th>Meter type</th>
<th>Energy measurement</th>
<th>Annual volume</th>
<th>Value of uncertainty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>TM or equivalent</td>
<td>Fixed Z</td>
<td>V &lt; 170,000 m³/y</td>
<td>negligible</td>
</tr>
<tr>
<td>Normal</td>
<td>USM or TM</td>
<td>Fixed composition (T &amp; P compensated)</td>
<td>170,000 &lt; V &lt; 10 M m³/y</td>
<td>small</td>
</tr>
<tr>
<td>Big</td>
<td>USM or TM (with curve correction)</td>
<td>Gas Chromatograph</td>
<td>10 M &lt; V &lt; 500 M m³/y</td>
<td>reasonable</td>
</tr>
<tr>
<td>Very big</td>
<td>Double TM and USM (full curve correction)</td>
<td>Gas Chromatograph</td>
<td>V &gt; 500 M m³/y</td>
<td>substantial</td>
</tr>
</tbody>
</table>
Total Project Management
An efficiently functioning system, delivered in accordance with the contract, within the agreed period and for the agreed price. That is what you can expect from us.

Our project managers take complete responsibility and manage all the risk. We nominate a fixed point of contact to represent your interests when dealing with the different relevant functions in our company that are involved in the creation of your solution.

Your dedicated project manager keeps all parties involved, and organises internal and external meetings with both contractors and end users. He ensures that your project is supported with relevant documentation, including functional design specifications, drawings, manuals, product data sheets, material certificates and maintenance procedures.

Project engineering
As soon as you agree to work with us you will start to experience what we mean with providing peace of mind. With our thorough knowledge of gas and gas metering, we will do what we can to supply you a total solution, engineered and customized to your specific needs.

We offer our long term engineering expertise in different areas:

- **Mechanical**
  - Risk & stress analysis of the station that needs to be assembled
  - Wall thickness calculations
  - Preparation of design documents as P&ID and lay-out drawings
  - Preparation of all detailed mechanical documents required for construction, erection and maintenance of the system
  - Selection of mechanical procurement materials and equipment in compliance with your specifications

- **Electrical/Instrumentation/Analyzers**
  - Explosion risk evaluation of the equipment and/or station
  - Calculation of cable capacities
  - Design of cabinets and junction boxes
  - Preparation of all required detailed electrical engineering documents
  - Selection of electrical and instrumentation equipment
• **Systems**
  - Preparation of the hardware communication configuration diagram
  - Preparation of required detailed engineering documents
  - Configuration of the station’s supervisory system software
  - Selection of required equipment and software
  - Configuration of software for flow computers and other equipment

• **Ultrasonic**
  - Configuration of the Ultrasonic Meters as per project specifications
  - Ultrasonic value noise calculations
  - Validation of the station’s design with regards to measurement accuracy and wet calibration results
  - Preparation of Ultrasonic Meter detailed manufacturing documents

Of course our work doesn’t end with delivery of the integrated system. We offer assistance during Factory Acceptance Testing for all equipment, and will be your back-up during commissioning, or do the commissioning and start-up for you. And also after that you can count on our full after-sales support.
As Original Equipment Manufacturer we offer you one total concept containing ultrasonic flow meters, turbine flow meters, flow computers, energy measurement, gas chromatographs and supervisory equipment, irrespective the location. This will save you time, money and lots of worries.
SM-RI-X Turbine gas meter
The SM-RI-X meter is a robust measuring instrument that is specially suited for transporting gas at high operating pressures. It has been proven to be the most stable turbine gas meter in the market today, which is why a few of the world’s largest test and calibration centres for natural gas in the world use our SM-RI-X as their benchmark. The SM-RI-X is standard equipped with an oil lubrication system and a metal index head. Low cost medium frequency pick-up in the index head is available as an option. Our customers clearly agree with the quality of this product, which has resulted in an installed base of over 1,000,000 SM-RI-X turbine gas meters worldwide.

SM-RI-2 Turbine gas meter
Our SM-RI-2 meter is the world’s first turbine gas meter that allows optional bi-directional gas measurement. Furthermore, while the flow capacity has been increased to match existing ultrasonic gas meters for same size gas meter capacities, pressure loss has been reduced to 50% of conventional turbine gas meters. The SM-RI-2 collects its data on-site with its TurbinScope diagnostic tool. Misreads due to installation effects, turbine blade damage, bearing damage, flow pulsations and accuracy forecasts at minimum flow can all be analysed at the factory without removing the meter from the process. Also the SM-RI-2 is standard equipped with an automatic oil lubrication system. Combined with an ultrasonic gas meter it achieves high redundancy rates with improved long term stability.

Product portfolio

- Nominal diameters: 50 – 600 mm
- Flow range: 10 – 25,000 m³/h
- Measuring range (LP air): 1:20 to 1:30
- Operating temperature: -20°C to +60°C
- Housing material: spheroidal graphite iron, cast steel, cryogenic steel
- Pressure range: 0 – 100 bar
- Inlet and outlet section: > 2 DN
- Automatic lubrication system
- Available for applications with temperatures up to 170° C and for measuring ethylene

- Nominal diameters: 200 – 600 mm
- Flow range: 32 – 40,000 m³/h
- Measuring range (LP air): 1:20 to 1:30
- Operating temperature: -25°C to +70°C
- Housing material: cryogenic steel
- Pressure range: 0 – 100 bar
- Inlet section: > 5 DN
- Automatic lubrication system
- Includes TurbinScope diagnostic tool
ENCAL Gas Chromatograph
Our EnCal 3000 is a gas chromatograph that is specially designed for fiscal measurements of energy and other properties of natural gas. It uses chromatography components based on the latest Micro Electro Mechanical Systems (MEMS) technology and capillary columns that guarantee accurate, real-time analysis results. This compact analyzer contains all the analytical hardware, sample conditioning, stream selection and required electronics for stand-alone operation.

- Repeatability < 0.01 %
- Electronic pressure control
- TCP / IP communication
- C6+ within 3 minutes
- C9+ within 5 minutes
- Other applications: THT, H2S, hydrocarbon dew point, biogas analysis

Q-Sonic Ultrasonic gas meter
Our Q-Sonic Ultrasonic gas meter is ideally suited for custody transfer measurements of natural gas. The Q-Sonic ultrasonic gas meter offers maximum measurement accuracy with long-term stability because of our patented arrangement of measuring paths in conjunction with sophisticated ultrasonic sensors and digital signal processing. Because there are no moving parts there is less risk of wear and tear which has a direct impact on its maintenance needs. The flow profile analysis of the Q-Sonic dispenses the use of a conventional flow conditioner. Our ultrasonic flow meter pioneering and manufacturing for over 20 years has resulted in an installed base of over 4,000 ultrasonic flow meters worldwide.

- Rangeability: 100 – 1600 mm
- Gas pressure up to 150 bar (optionally to over 400 bar)
- Gas temperature up to 120°C
- 3, 4 or 5 measuring paths (two double reflection paths combined with 1 to 3 single reflection paths)
- Integrated display
- Integrated conversion (PTZ)
- Impulse, digital and analogue outputs
- RS 485 and RS 232 serial interfaces
- MID approved, accuracy class 1.0
- For use in Zone 1 hazardous areas
Product portfolio

• Easy configuration
• Real-time Calculation and Communication
• Reporting & billing
• Tools for effective & efficient maintenance
• Intranet & Web based Solutions
• Run switching and Proving
• Diagnostics
  - Ultrasonic flow meters, velocity of sound
  - Filter blockage
  - Meter lubrication
• Metering calculations
  - Compressibility in accordance with SGERG, AGA-8, AGA NX19
  - Velocity of sound acc. AGA-10
  - Orifice / venturi calculations acc. ISO5167, AGA-3
  - Energy calculations acc. ISO6976, AGA-5, GPA 2172

Metering Automation System (MAS)

Another major part of our system integration activities are focused on ‘Metering Automation Systems’. For over 20 years we offer these solutions combined with our metering skids to provide accurate measurement and reliable control of gas custody transfer installations. It integrates Elster-Instromet products, automatically monitors performance values, supervises and controls the metering process as well as the SCADA data acquisition system (SCADA=‘Supervise, Control and Data Acquisition’).

The metering automation system consists of both hardware and software built into an electrical cabinet and interconnects amongst others flow meters, transmitters, flow computer(s), controllers, PLCs, operator terminals and actuators bringing all I/O together.

Before shipping we perform a complete functional test on all of our pre-configured systems for safe operation and faster implementation. The comprehensive testing can be done at our in-house FAT test facilities.

Besides tailor made solutions, Elster-Instromet offers standard solutions such as SuperGuard to meet most common demands in a compact and cost effective way.
**Flow computers**

Our flow computers are meant for large scale metering stations and support turbine, rotary, ultrasonic, orifice, density, venturi and coriolis flow meters. Our FC-2000 real-time flow computer is designed for hydrocarbon liquid and gas measurement and control applications like the upstream and transmission market. The FC-1 flow computer combines the full flexibility of the FC-2000 with the specific needs and standards of a downstream distribution concept. A modular system design for both hardware and software, combined with a modern full graphic touch screen display makes our flow computers adhere to the standards of today.

**ISS plus Supervisory Suite**

This is our measurement supervisory and control system for gas and liquid metering installations that combines twelve years of extensive experience in automation of bulk gas control and monitoring with the latest technologies. This Supervisory Suite provides a total supervisory solution for all your metering applications: stations from a single stream up to 100 streams, control systems for high-pressure calibration facilities and remote metering applications where stations are interrogated via a radio network and data are concentrated into a central pipeline monitoring system. The supervisory system can consist of a single supervisory computer or can be dual redundant.

ISS plus is more than a SCADA or DCS package; it is specifically developed for gas / liquid metering applications where accurate calculations, data processing, reporting and advanced communication capabilities are of the utmost importance.

**Calorific value measurement.**

With the gas chromatograph EnCal 3000 and the gas-lab Q1, Elster-Instromet offers two top-quality calorific value measuring devices. Up-to-date components guarantee precise and real-time analysis results. Also for your application.
Starting up your business is a memorable moment. Obviously, we take care of ‘rapid response’ and continuity. Maintaining your gas plants is crucial. We lower your cost of ownership by aligning all components optimally and offering an effective maintenance program. We never let you down.
Services and Training

As an Original Equipment Manufacturer one of our key objectives is to maximize the uptime of your processes by ensuring reliable operation and optimum lifetime. Our well trained and customer focussed service engineers install, test and commission your equipment and system properly so that your metering station will be up and running at peak performance quickly and easily.

Typical services during start-up & commissioning phase include:

- Supervision of correct installation
- Pre-commissioning, testing & verification of all equipment, system & components
- Operational Testing
- Start-up and Acceptance Testing
Reduce your operations costs
Preventive maintenance helps you to maximize reliability and performance of your station and help you avoid extensive and costly repairs at a later date.

Our service technicians perform inspection of your equipment and/or system, determine the maintenance measures that are needed and prepare a complete report for you.

Field Service
Anywhere in the world, Elster-Instromet service engineers are available to help resolve unplanned downtime events, problems affecting critical operation and other related issues. At your request our well-trained service professionals will travel to site within a mutually agreed timeframe to help you limit potential loss of revenue as much as possible.

Training
We offer a full range of result driven training courses, covering our complete product and systems portfolio. Training can be in a class-room setting or hands-on, in-house or on-site, both ready-made as well as tailored to your needs.
Elster-Instromet is taking full responsibility for your entire project. Designing, engineering, welding, hydrostatic testing, painting, assembly and transportation are all facilities we offer in-house. You will find our production locations around the world, so we can support you from concept to completion. Wherever you are.
Elster-Instromet Integrated Metering Solutions has engineering and manufacturing locations around the world. We have internal and external workshops for the production of the (skid mounted) stations. A dedicated team of experienced professionals of mechanical, instrumentation, electrical and welding engineers forms a multidiscipline project and engineering organization to support your projects from conception until realization.
Quality Assurance

We want to make sure that all installations and products we deliver comply with the highest quality and safety standards, so we can guarantee a minimum of risk for our customers.

Our Quality Assurance department works closely with Production and Engineering to monitor all phases of the process and to ensure the highest quality in what we deliver.

We can meet global product and fiscal metering standards as CE, UL, PED, ATEX, DIN, IED, NACE, ANSI, ASTM, AGA, ISO, and OIML.

We are ISO9001 certified.

Production Capabilities

Elster-Instromet is working with internal and external production facilities all over the world. For the production of stations for the local and international market, as well as the production of Ultrasonic flowmeters our factory in Essen Belgium plays a key role. Stations ranging from small M&R distribution skids all the way up to large high pressure skids are fabricated here.

All welding is 100% certified and performed under ISO 3834-2 quality label. The examination is done at our own NDT / X-ray shelter. The hydrostatic testing area is able to test up to 600 bar. Grit blasting and spray paint facilities are also available.

At the assembly area the complete installation is erected starting from the frame. All pieces are mounted together into one complete metering skid. Before shipping, the installation will be tested typically followed by a Factory Acceptance Test, witnessed by the customer.

Other key production locations are at Melton Mowbray United Kingdom, Vadodara Gujarat India and Kuala Lumpur Malaysia.
Elster-Instromet is a company with global performance. But also we are truly your local partner, with engineering and manufacturing locations around the world. So you can rely on short routes, quick response times and direct support. We will be pleased to meet you.
Sales organisations worldwide

**Singapore**
Elster-Instromet
160, Paya Lebar Road,
#04-01, Orion@Paya Lebar
Singapore 409022
T +65 6247 7728
F +65 6747 7646
sales@elster-instromet.com.sg
www.elster-instromet.com

**USA**
Elster-Instromet, Inc.
13333 Northwest Freeway
Suite 650
Houston, TX 77040
Tel. +1-713-690-4442
Fax +1-713-690-4449
sales@instrometinc.com
www.instrometinc.com

**United Arab Emirates**
Elster-Instromet Middle East
5th Floor, Old Blood Bank Building
Behind HSBC bank, Al Salam Street
PO Box 30436, Abu Dhabi U.A.E
Tel. +971 26 455 158
Fax +971 26 452 499
sales.middle-east@elster-instromet.com
www.elster-instromet.com
Sales, engineering and production organizations worldwide

**United Kingdom**
Elster Instromet
Elster Metering Ltd.
No. 4 Pate Road
Melton Mowbray
Leicestershire, LE13 0RG

United Kingdom
T: +44 1 664 567 797
F: +44 1 664 410 254

sales@elster-instromet.co.uk
www.elster-instromet.com

**Malaysia**
Elster-Instromet Sdn. Bhd.
21-1, Jalan PJU 1/42
Bld E1 - Dataran Prima
47301 Petaling Jaya,
Selangor D. E.
Malaysia

T: +60-3-7880 2908
F: +60-3-7880 2913

sales@elstromet.com.my
www.elster-instromet.com

**India**
Elster-Instromet India Pvt Ltd.
2nd Floor, Shreeji,
Above HDFC Bank,
Vasna Road,
Vadodara-390015
Gujarat, India

T: +91 265 22 50 406
F: +91 265 22 53 132

sales@elster-instromet.in
www.elster-instromet.com

**Belgium**
Elster NV/SA
Rijkmakerlaan 9
2910 Essen
Belgium

T: +32 3 670 0700
F: +32 3 667 69 40

sales@elster-instromet.com
www.elster-instromet.com

**Germany**
Elster GmbH
Steinern Straße 19 – 21
55252 Mainz-Kastel

Tel. +49 6134 605 0
Fax +49 6134 605 390

info@elster-instromet.com
www.elster-instromet.com

**The Netherlands**
Elster-Instromet B.V.
Munstermanstraat 6
7064 KA Silvolde

Tel. +31 315 33 89 11
Fax +31 315 33 86 79

info-silvolde.nl@elster.com
www.elster-instromet.com

**China**
Elster-Instromet Beijing Rep. Office
Rm. 1108, Landmark Tower 2,
Beijing 100004

Tel. +86 10 65907136
Fax +86 10 65906864

wangxg@elster-instromet.com.cn
www.elster-instromet.com
www.elster-instromet.com.cn

**Russia**
OOO Elster-Instromet
119049 Moscow,
4. Dobryninskij per., dom 8, office 204

Tel. +7 495 287 30 60
Fax +7 495 287 30 62

office@instromet.ru
www.elster-instromet.com
Leading the world in metering technology.
The reputation of Elster-Instromet as a worldwide leader in state-of-the-art gas measurement and regulation, electronic system design & manufacture and as a provider of modular skids is something we are very proud of.

- Elster-Instromet production plants
- Elster Instromet calibration equipment supplied
- Elster-Instromet achievements
- LNG projects