



**KELTON**

*Delivering Measurement Excellence*

# Consultancy Services

Delivering measurement excellence



## KELTON

Fully accredited, KELTON™ is the leading independent flow measurement consultancy and software developer for the oil and gas industry.

Whether clients require inspection, auditing or certification as part of System Compliance; uncertainty calculations for System Assurance; or general System Support – in KELTON they find a partner they can trust.

### Experience and expertise

Since 1991, KELTON has provided consultancy services for some of the biggest names in the oil and gas industry – including both international and national oil companies – to ensure their full flow measurement compliance with industry regulations.

Having completed over 2,500 audits and trained more than 5,000 flow measurement professionals, KELTON has earned a worldwide reputation for the provision of outstanding flow measurement consultancy, independent audit and training services.



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# Consultancy services

Understanding and controlling your flow measurement system uncertainty is of paramount importance. But with multiple systems, designs and configurations used to measure oil and gas – each with varying impacts on measurement uncertainty – and different parameters and process conditions, ensuring accuracy is difficult.

## Delivering measurement excellence

Fully accredited and underpinned by more than 25 years of industry experience, KELTON's specialist consultancy services give you the support and certainty you need in your flow measurement system performance.

## KELTON's services include:

### System Compliance p.04

- Inspection
- Audit
- Certification

Leading audit services delivering assured performance and certified compliance

### System Assurance p.06

- Design uncertainty
- Modelling
- System uncertainty

Ensuring accuracy with proven calculation models to assess and validate system uncertainty

### System Support p.08

- Support partnerships
- Manuals/Procedures/Guidelines
- Training

Delivering peace of mind through best practice operator training and long-term support partnerships

# System Compliance

## **Assured performance**

A key challenge for international and national oil companies and metering system integrators is to ensure that their existing or proposed metering system is fit for purpose.

Errors in your measurement system can have contractual and regulatory implications resulting in dispute, litigation and reputational damage. It can also impact your bottom-line through incorrect hydrocarbon accounting.

Proactively identifying current and potential issues – whether at a design, integration, commissioning or operational phase – KELTON's Audit Services give you the assurances you need in your flow measurement system; ensuring ongoing performance and compliance.

## **Accurate from the start**

KELTON can provide a range of project support, including engineering studies, across all stages of a flow measurement system's development.

From conceptual study and front-end engineering and design (FEED) through to factory acceptance testing (FAT) and site acceptance testing (SAT), you can be assured of system suitability prior to costly implementation.



### **Certified compliance**

As a United Kingdom Accreditation Service (UKAS) accredited inspection body, KELTON will fully assess your measurement system – regardless of the stage in development – and can issue a measurement compliance certificate in line with ISO/IEC 17020 upon successful audit completion.

This proves to all stakeholders that you have selected appropriate equipment, it is operated and maintained sufficiently to provide the best uncertainty of hydrocarbon measurement, and it conforms to the relevant standards, guidelines and commercial agreements.

# System Assurance

## The impact of uncertainty

Understanding and controlling your uncertainty is fundamental to any flow measurement operation. Even the smallest change in measurement uncertainty can have a considerable impact on your operational and financial performance.

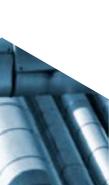
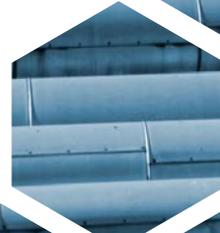
An unmanaged change in your uncertainty could result in; a 'barrels per day' or process efficiency mismeasurement impacting your bottom line; a mismeasurement resulting in litigation costs from a contractual dispute or a regulatory fine; or reputational damage impacting future partnerships.

Measurement uncertainty should therefore be considered throughout the entire life of a flow measurement system – from system design and engineering to installation, and whilst in operation.

However, there are multiple systems, designs and configurations which can be used to measure oil and gas; each with varying impacts on measurement uncertainty.

## The uncertainty experts

With extensive experience in flow measurement uncertainty – including involvement in the development of national and international uncertainty standards and guidelines – KELTON's System Assurance services give you certainty in your uncertainty assessment.



### **Managed uncertainty**

Providing uncertainty models for flow measurement, allocation and transportation systems, KELTON will assess your system's uncertainty to ensure it meets the required standards. This includes: ensuring accuracy within flow computers, control systems, allocation systems and other business reporting systems; verifying flow data integrity from meter to reporting; and assessing the uncertainty levels in the reported totals used for contractual and regulatory purposes.

If there is a discrepancy between the stated and actual uncertainty, KELTON can advise on the right solution to meet your operational and commercial objectives whilst remaining compliant with all relevant contracts and regulations.

Furthermore, KELTON's consultancy experts will model the impact of changing equipment conditions, process conditions and other parameters on system uncertainty to support effective decision-making.

### **Uncertainty verified**

As a UKAS accredited flow measurement inspection body, KELTON can independently verify that your data integrity and uncertainty levels are appropriately maintained. This proves to stakeholders that all reported totals are accurate and within the stipulated limits, and demonstrates adherence to commercial and regulatory requirements.

#### **Supporting uncertainty modelling:**

## UNCERTAINTYPLUS

The desktop solution to remove the uncertainty from your uncertainty modelling

- Aligned to the latest industry standards
- Full traceability on all calculations
- 95% confidence level
- Enables modelling across a range of process conditions and production profiles
- Modules available for different measurement systems

# System Support

## Delivering peace of mind

KELTON has a wealth of operational experience gained in the fields of engineering, third-party audit, supervision, project management, field operations, training, measurement reporting and system design, and the design of fiscal, custody transfer and allocation systems. Combined with an intimate knowledge of operational best practice and avoiding/resolving common pitfalls, KELTON is your trusted partner for ongoing system support services.

## Assured long-term performance, complete system support:

- Audit of metering facilities and procedures
- Tracking and analysis of equipment performance including trend analysis
- Full compliance and traceability to the latest industry and regulatory standards
- Production of measurement guidelines and mis-measurement reporting
- Production of metering system log books
- Metering system design reviews for new or existing facilities
- FAT supervision at system integrator / OEM and SAT supervision
- Supervision of testing at meter calibration facilities and audit of fluid analysis laboratories
- Production of procedures, including: pre-commissioning and commissioning, start-up and shutdown, operation and calibration, and any others that are required to ensure total system control
- Production of manuals, including: flow computer configuration, calibration tolerance, system certification and handover manuals



### **Sharing best practice**

With extensive experience and expertise in flow measurement system design, audit, field operation and reporting, KELTON has earned a worldwide reputation for the provision of outstanding flow measurement consultancy and independent audit services. And you can learn from the KELTON experience.

From standard flow measurement training courses to bespoke courses tailored to your requirements, KELTON's training courses are beneficial to budding and experienced metering, instrument and process engineers alike.

Delivered using a combination of theoretical underpinning and real-world examples to maximise engagement, delegates attending a KELTON accredited flow measurement training course can request a Continual Professional Development (CPD) Certificate of Attendance, and record their participation towards their formal CPD requirements for their professional body, institute or employer.

### **Training courses include:**

- Flow measurement of hydrocarbon liquid and/or gas
- Introduction to flow measurement auditing
- Introduction to uncertainty in measurement
- Introduction to allocation systems
- Bespoke courses

All courses can be provided at a KELTON location or delivered on-site.

# Why KELTON consultancy services?

## Delivering measurement excellence

### **Assured performance**

Inspection and audit services to give you the assurances you need in your flow measurement system.

### **Uncertainty verified**

Regulatory alignment through independent verification of data integrity, uncertainty levels and reported totals.

### **Managed uncertainty**

With extensive experience in flow measurement systems, KELTON gives you certainty in your uncertainty assessment.

### **Sharing best practice**

Benefit from the KELTON experience through standardised and customised training courses.

### **Certified compliance**

Independently certified proof that your system conforms to the relevant standards, guidelines and commercial agreements.

### **Delivering peace of mind**

With an intimate knowledge of operational best practice, KELTON is your trusted partner for ongoing system support.

# Benefit from the KELTON experience



## Specialist applications from KELTON



The fully integrated software suite to manage all your flow measurement activities



The most comprehensive set of calculations available to flow measurement engineers



The desktop solution to remove the uncertainty from your uncertainty modelling

## Contact Us

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## Microsoft Partner

Gold Application Development

