


The Complete Measurement Solution



Vastly experienced in the oil and gas industry, Metrum provides global customers with a wide range of metering, instrumentation measurement and testing services.

We offer a wide range of services, including:

- ✓ Consultancy Services
- ✓ Construction and Commissioning
- ✓ Maintenance and Support
- ✓ Auditing and Health Checks
- ✓ Training

Metrum is Orion Group's latest partnership, providing cost-effective, fully-compliant and fit-for-purpose metering services, including the ability to supply metering specialists and to train in-country local engineers and graduates. receive the full metering solutions you require.

About Orion

Orion Group is an international leader in the provision of technical talent and value outsourcing solutions. Orion has placed over £3bn worth of solutions in the energy sector since its inception in 1987. Our Value Outsourcing offering within Orion boasts full Statement of Works capabilities via our OCCMS, OPRO and ISP-branded divisions and supplies our in-house completions and commissioning software, Orbit™.



Paul Gibson
Head of Metering, Metrum

Paul Gibson is a highly-experienced metering expert with 20 years' experience in the field of metering operations and over ten years in the field of instrumentation. Paul has a proven history of aiding and significantly improving the efficiency and success of operators' platforms across the world and is experienced in all stages of metering consultancy, engineering, projects and maintenance delivery. Paul places the utmost importance on collaboratively working with clients to achieve the desired results as quickly and efficiently as possible.



At Metrum, we provide a complete measurement solution and look to fulfil all our client resource needs by offering competent personnel and excellent service.

Metrum has a multitude of operational experience gained in the fields of engineering, third-party audit, supervision, project management, field operations, training, measurement reporting and system design.

Our services include independent metering expertise in:

- ✓ Fiscal Metering
- ✓ Allocation Metering
- ✓ Process Metering
- ✓ Fiscal and Process Analysers
- ✓ EUETS regulation metering for environmental compliance, including emissions and pollution-related legislation.

As a collective with an in-depth knowledge of operational best practice, Metrum is your dependable partner for ongoing metering support services.

Why choose Metrum?

In our experience, accurate measurement requires every metering system to be designed in accordance with international standards and industry good practice.

A crucial challenge for international and national oil companies and metering system integrators is to ensure that their existing or proposed metering system is operating within the desired uncertainty budget and for the application to be fit for purpose. Inaccuracies in your measurement system can have contractual and regulatory consequences resulting in dispute, litigation and reputational damage. It can also impact your company finances through incorrect hydrocarbon accounting.

By choosing Metrum, you will benefit from our practical, hands-on experience of projects and operations, which can help to reduce your exposure to risk on the development of meters.

We pride ourselves on our long-established reputation with operators and regulators for integrity and high-ranking expertise. We are also well-known for being independent from equipment manufacturers or agency agreements. With access to qualified, experienced personnel able to perform acceptance testing anywhere in the world, we can offer you independent, expert advice wherever you need us.

We can also help you meet contractual, national and international regulatory measurement guidelines, whilst minimising risk and maximising revenues.

Precise measurement from the beginning

Metrum can provide 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 and site acceptance testing (FAT, SAT), you can be confident of system suitability prior to expensive execution.

Confident performance

Proactively identifying current and potential issues – whether at the design, integration, commissioning or operational stage – METRUM give you the confidence you need in your flow measurement system, ensuring flow measurement accuracy and ongoing compliance.

Added Value

We can add value to all our customers' production facilities by ensuring that the correct meter type has been selected, installed, operated and calibrated to the agreed standards, and is maintained correctly to optimise revenue and profitability.

Designing the most effective solution

Our metering design, selection and verification services add value to projects from conceptual and front-end engineering designs (FEED), through detailed design to installation, commissioning and steady state operation of systems. We can add value to our customers' production facilities by ensuring that the correct meter type has been selected. We then ensure that it has been installed properly, operated and maintained, and correctly calibrated to allow you to optimise revenue and profitability.

Our independence from equipment manufacturers and non-participation in agency agreements provides you with the assurance that our verification is free from any commercial bias related to the fitness for purpose of any equipment or system. We perform factory and site acceptance testing to independently verify that system construction and computer configuration is maintained between construction completion and on-site start-up.

We offer a host of services to ensure that you get the best metering design selected and verified for your specific requirements, including:

Project Support

- ✓ Metering Consultancy to support the client during concept, select and FEED.
- ✓ Measurement system detailed design, design input and design reviews.
- ✓ Detailed specifications dossiers
- ✓ Basis of design dossiers
- ✓ System uncertainty analysis

Construction Complete and Commissioning

- ✓ Plan and prepare
- ✓ Metrum-specific metering checksheets and commissioning test procedures.
- ✓ Access to our In-house completions and commissioning management system Orbit™
- ✓ FAT's, SAT's, commissioning execution and close-out

Operations Support

- ✓ Early production support and fine tuning
- ✓ Aged production support
- ✓ Site surveys
- ✓ System reviews
- ✓ Maintenance solutions and reviews
- ✓ Upgrade solutions and reviews
- ✓ Liaison with regulatory authority and partners

Specialist Manpower Supply

- ✓ Global mobility solutions
- ✓ Competency assured supply
- ✓ Training solutions



Acceptance Testings

Metrum provides acceptance testing services to ensure that fiscal, allocation or environmental metering systems meet functional design specifications before going into service.

We can carry out the testing at the manufacturing location (factory acceptance testing), or when equipment has been commissioned on-site (site acceptance testing).

Why undertake acceptance testing?

Acceptance testing provides valuable information to identify any discrepancies between your client's requirements and the metering system itself before it goes into active service.

Identifying any discrepancies at this stage means that they can be corrected at less cost and with less disruption than once the system is up and running.

With acceptance testing there comes testing procedures, which Metrum could review or develop new project-specific factory and site acceptance testing processes to ensure that any new systems meet required criteria in all respects of their design and functionality.

Understanding Uncertainty

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

An unmanaged change in your uncertainty could result in a 'barrels per day' or process efficiency mismeasurement, which could have a severe impact on your business income finances. A mismeasurement could also result in lawsuit costs from a contractual dispute or a regulatory fine, or you could receive 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.

Managing uncertainty

Providing uncertainty models for flow measurement, allocation and transportation systems, Metrum will assess your system and uncertainty to ensure it meets the required standards.

Through metering uncertainty studies, we can provide an indication if your metering system falls within or outwith the operating envelope design. Metrum personnel regularly undertake uncertainty studies on all types of meter and measurement system for liquids and gaseous measurement applications.

From our findings, we will look to:

- Ensure accuracy within flow computers, control systems, allocation systems and other business reporting systems;
- Verify flow data integrity from meter to reporting;
- Assess the uncertainty levels in the reported totals used for contractual and regulatory purposes.

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

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

Our uncertainty management approach includes:

- Commissioning
- Designing and constructing tailor-made solutions to meet the requirements of the client and the installation
- Production of functional design specification
- Factory acceptance testing procedures
- Site acceptance testing procedures
- Installation and commissioning Services
- Delivery of new, expanded and upgrade Solutions
- Healthcare contract provision
- Obsolescence management



Supplying equipment

We can provide our customers with a single source for the procurement of all their instrumentation requirements; whether it is to purchase a new item, hire on a short-term basis, or have an instrument repaired or calibrated.

We have a wide range of products and services designed to meet the most challenging client requirements and highly-trained experienced personnel are on hand to offer advice and consultation 24/7.

Over the years, the Metrum team have built close working relationships with leading manufacturers of instrumentation products. We can offer the latest technologies available in the instrumentation market and can supply a wide range of metering test equipment and process instruments.

Our equipment management service provides unique test and measurement equipment solutions and project management support, in line with UK oil and gas requirements. It offers numerous benefits to our clients by providing single point accountability for all instrumentation. These benefits result in greatly reduced administration time for engineers and co-ordinators, planned equipment maintenance and recertification with minimal operational disruption and overall reduced costs and lead times.



Metrum worked with a leading exploration company who required metering technical support to review the suitability of a third party offshore FPSO for their new well.

Although a review had been conducted by the third party and an independent engineering company of their choice, the company lacked metering knowledge and wished to validate the content of the review.

Project Challenges

From analysing the contents of the review, Metrum uncovered the following issues:

- Improvements were suggested that were to be paid for the exploration company at significant cost.
- There was a sole focus on installation costs, with no maintenance costs accounted for.
- Specifics such as fluid wax appearance temperature were not accounted for.
- There was detail around the use of the company's gas lift system, but not how the gas would be measured.

Successes

After Metrum reported back our findings on the review, significant improvements were made on behalf of the exploration company:

- A saving of £2.4m was identified and measurement improvements were suggested to replace the initial review's proposed outcomes;
- An overview of the maintenance required was provided to the exploration company along with advice on how to modify the suggested improvements to optimise maintenance;
- Trace heating was specified to avoid the waxing of fluid, as any outages experienced utilising the improvements from the initial review would have resulted in this;
- A full review of the gas lift metering system and an allocation agreement between the companies was commenced.

Training



Metrum can provide a range of Measurement courses, ranging from a Measurement appreciation course through to specialised courses on auditing and uncertainty.

These courses are designed to increase the awareness of measurement and the financial risk attached to it. These courses are:

SQA Measurement Vocational Qualification

Scottish Vocational Qualifications (SVQs) are internationally-recognised awards based upon national standards, providing evidence that engineers and technicians are competent in the workplace. The Scottish Vocational Qualification (SVQ) level 3 in Measurement Processes (Maintenance) allows candidates to demonstrate competence in job-related skills in their area of work and expertise.

The qualification consists of four mandatory units and one optional unit. Mandatory units include 'Perform Pre-Measurement Processes Operations' and 'Establish and Maintain Effective Working Relationships in the Measurement Processes Environment'. Optional units include 'Inspect and Verify Gas Measurement Systems' and 'Inspect and Verify Bulk Storage Measurement Systems'.

Upon completion the candidate is awarded a formal qualification SVQ level 3, which demonstrates an advance measurement knowledge along with supervisory skills.

Measurement Fundamentals – 2-day duration

This course provides delegates with an understanding of the key concepts (operations, maintenance and routine re-calibration) relevant to oil, gas and water flow measurement systems, including associated quality measurement systems. Metrum's training consultant will utilise materials designed to cover theory, regulatory requirements and technologies involved in the measurement of fluid flow.

Advanced Measurement Fundamentals – 3-day duration

This course provides delegates with a detailed overview of the key concepts relevant to onshore and offshore oil, gas and water flow measurement systems (and associated quality measurement systems), together with their detailed operation. The course provides a detailed overview on how to conduct the maintenance and routine re-calibration. Metrum's training consultant will utilise materials designed to cover theory, calculations, regulatory requirements and technologies involved in the measurement of fluid flow.



Advanced Measurement Fundamentals with Practical Involvement – 5-day duration

This course provides delegates with a detailed overview of the key concepts relevant to offshore oil, gas and water flow measurement systems (and associated quality measurement systems) together with their detailed operation. The course provides a detailed overview on how to conduct the maintenance and routine re-calibration. Metrum's two training consultants will utilise materials designed to cover theory, calculations, regulatory requirements and technologies involved in the measurement of fluid flow. The consultants will require access to equipment and test equipment to complete this module.

Health check Training

This course provides delegates with the skills to conduct a health check on a metering system. The course will cover compliance of transportation and processing agreements, national and international metering standards, hydrocarbon/secondary allocation, sampling and sample analysis by client's own laboratory as well as by independent laboratory. Technicians will gain the knowledge to health check metering field equipment, flow computers, test equipment, documentation and procedures.

Maintenance Management Training

This course provides delegates with an overview of the best practice for managing a metering system. The course will cover data collection, data recording, data reporting, importance of keypad values, configuration storage, certification management, audit point ranking and tracking. The course provides assurance that the metering system is operated, maintained and documents to the highest standard, reducing mismeasurements and audit points.

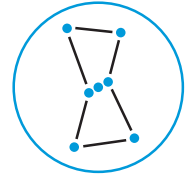
Ultrasonic Diagnostic Training

This course provides delegates with an understanding of prover system (operations, maintenance and routine re-calibration) relevant to oil and gas. The course gives a detailed overview on the prover system, typical faults and an interpretation of the data produced.

Flow Computer Training

This course provides delegates with an understanding of flow computers including (operations, maintenance and calculations) relevant to oil and gas. The course gives a detailed overview on flow computers (generic or specific to site) The course will cover data input, interpretation, calculation and the importance of data backup.

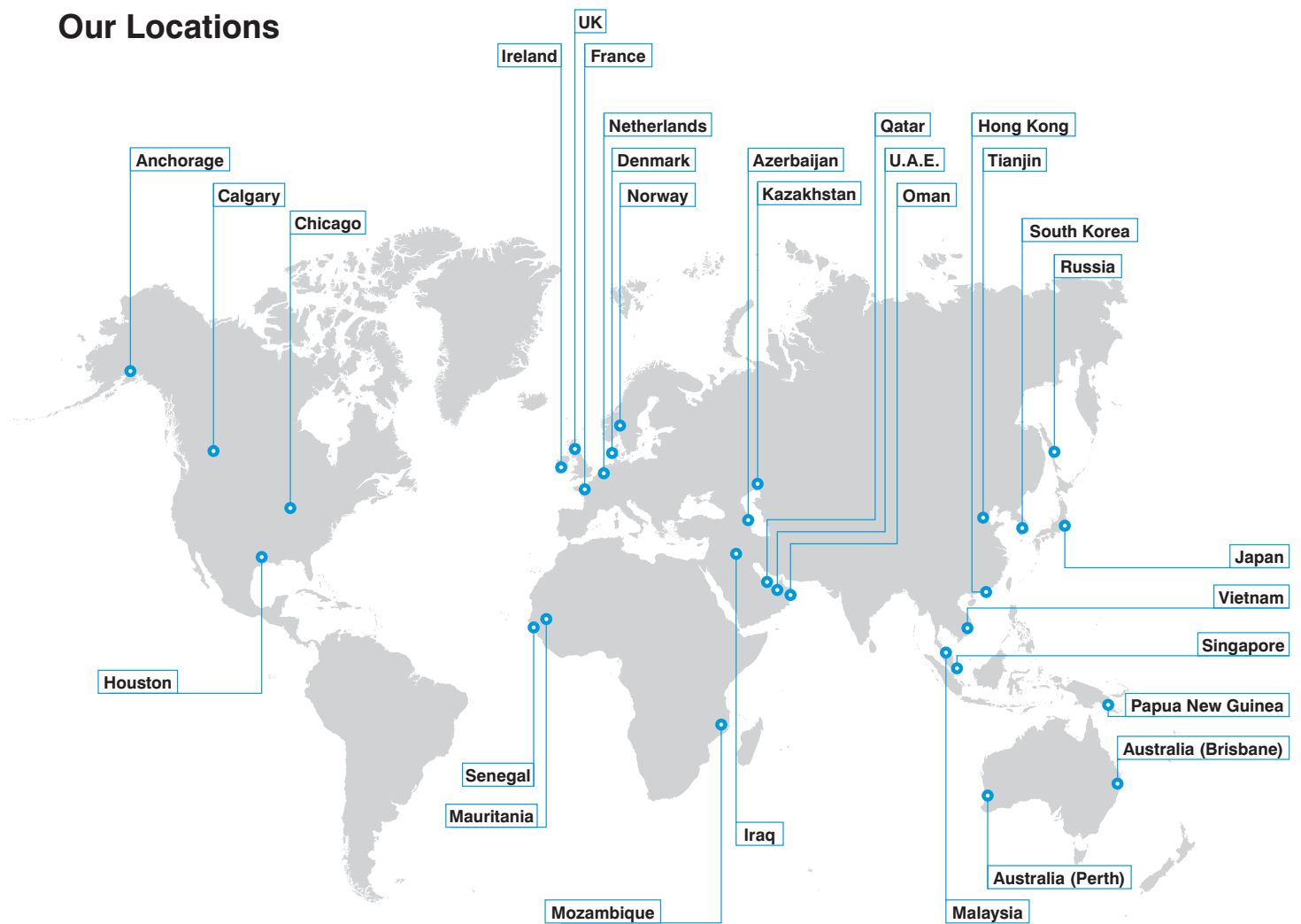
OrionGroup



Whatever support you need, Metrum are more than happy to help. If you're interested, get in touch with us today to discuss your requirements.



Our Locations



Please contact

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