



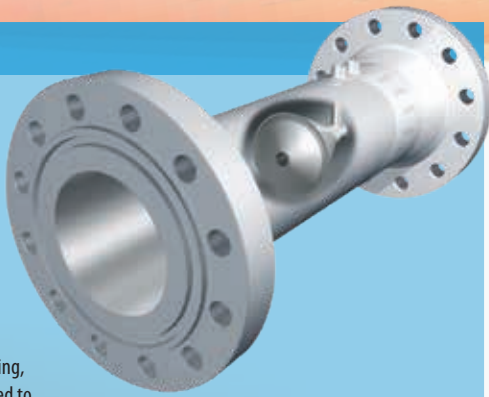
PRODUCT OVERVIEW

ABLE

V-CONE

The McCrometer V-Cone Flow Meter is an advanced differential pressure instrument for use with liquids, steam or gas in harsh environments where accuracy, low maintenance and minimal pressure loss are paramount.

With built-in flow conditioning, the V-Cone is especially suited to applications where space is at a premium and where the long, straight pipe runs required by alternate flow technologies are either impractical or unavailable.



- Primary DP flow meter
- Accuracy +/- 0.5% with wide turndown ratio
- Minimal straight run requirement (3 OD upstream/1 OD downstream)
- Negligible pressure loss
- Preconditions flow
- No recalibration

THERMAL MASS FLOW METER

Magnetrol's Thematel® TA2 is an easy-to-use, economical, continuous gas flow meter that is often utilized to manage energy costs or to meet environmental regulations in Oil & Gas applications such as hydrocarbon gas flaring, wellstream separation and vapour recovery. Cost of ownership is reduced through ease of installation, field calibration verification and minimum maintenance. Since the measurement is based on heat transfer, the TA2 provides reliable performance at low gas flows and pressures where other technologies have difficulties.

- Direct mass flow measurement of air & gas
- Excellent low flow sensitivity with high turndown (rangeability)
- Process temperatures to +400 °F (+200 °C)



ULTRASONIC CLAMP-ON FLOW METER

Micronics ultrasonic flow meters are widely used in Energy Management and retrofit Building Services markets worldwide, to help reduce energy consumption and monitor water use.

Micronics' extensive range of products include Ultrasonic Clamp-On Flow Meters, Portable & Fixed Liquid Flow Measurement Meters, Energy Meters for heating and cooling applications and in-line MID approved ultrasonic energy and water meters for direct billing applications. Flow sensors detect and then measure flow rates from the outside of the pipework, without any interruption to flow or process. In addition, for Process or Water industry applications, Micronics provide Clamp-On, full pipe or "Doppler" open channel flow meters for contaminated or dirty liquid flows.



- Ultrasonic, cross-correlation flow measurement
- Reynolds number correction
- Easy to install
- Simple to follow set-up menu
- Clamp-on flow & temperature sensors
- Portable & fixed variants

ABLE FLAREMASTER™

The FlareMaster Flare Metering Enhancement Tool radically improves the performance of ultrasonic flare gas flow meters (FGM) and ensures good practice in emissions monitoring requirements and legislative compliance.

FlareMaster's advanced data analytics harvests the myriad signals routinely generated by the meter that aren't normally accessible to a standard flow computer, producing a significantly reduced uncertainty and a state-of-the-art data gathering and analysis tool.



- Provides full gas density inputs to flare meter to negate density distorting compositions
- Significant reduction in flare gas measurement uncertainty
- Real-time display of mass and standard volume flow, totalized flow, velocity, process temperature and pressure

ABLE SLUGMASTER™ INTELLIGENT FLOW METER

The ABLE SlugMaster uses two ultrasonic flow metering technologies and a smart PLC to make an intelligent selection as to which technology to apply, based on the prevailing process conditions. Constant metering is achieved regardless of solids and/or gas contamination. The changeover between the metering technologies is calculated with unique mathematical software so as to appear seamless and ensures exceptional measurement accuracy.

The core, patented technology at the heart of the ABLE Master series of instruments is a dual measurement, intelligent algorithm which is used to resolve demanding application challenges that would typically defeat conventional meters.



- Bespoke engineered non-contact flow metering system
- Highly aerated and contaminated liquid flow measurement
- Two-phase and multi-phase versions available

CORIOLIS MASS FLOW METERS

ABLE offer a wide range of Coriolis mass flow meters, capable of withstanding vibration, abrasion and corrosive media. The unique Omega tube design with full pipe wall thickness can also withstand maximum design pressure without the need for secondary containment.

With flow rates from as low as 0.03kg/hr and meter sizes up to 12" diameter, all mass flow applications on liquid, gas or sludge can be achieved. In addition to heavy industrial applications, the small bore meters are particularly suited to monitoring high pressure, high precision blending procedures associated with food and beverage production as they are unaffected by changes in conductivity, pressure, temperature and viscosity.



- Unique Omega tube design
- Full design pressure capability up to 900 Bar without secondary containment
- Temperature from -200°C to +400°C
- Line sizes up to 12" diameter
- Direct mass flow rates from 0.03kg/hr to 1,500,000kg/hr
- Available in exotic materials



Flow



Level



Pressure



Temperature



Gas Detection

SURE-CUT WATER CUT ANALYSER

M-Flow's cutting-edge water cut meter, the Sure-Cut®, is designed for the digital oilfield and is ideal for pipeline and terminal networks, where high precision is required, applying progressive density compensation and slug management. Sure-Cut® is supplied with auto-calibration and optimisation software to compensate for fluid changes, when connected to live line density and temperature inputs.

Sure-Cut's proven accuracy and resolution is based on laboratory validation of its microwave resonant cavity sensing. Sure-Cut's sophisticated graphical interface and connectivity presents a transparent, accurate system for processing production and diagnostic data. This data can be accessed remotely via a secure online interface from any connected device.



- Full range, 0% to the inversion point, from a single analyser
- Full density compensation as standard
- Compatible with all oil densities and viscosities
- Unique design negates intrusion into the flow
- No fouling or sensor damage
- No maintenance or recalibration required
- Long term repeatable performance

FLOAT LEVEL SWITCHES

The Besta range of float level switches offers a unique modular construction, providing solutions over many years in an extremely wide range of industries and applications. The modular design – switch, flange & float, can be supplied in numerous interchangeable variants with electric or pneumatic outputs.

The glandless design of the flange module permits online maintenance of all dry side components under full process conditions.



- Glandless construction, no leak paths
- Horizontal, vertical or external mounting options
- Extensive modular combination of switch types, process connection flanges and floats
- SIL 2 rated versions available for safety overfill protection
- Electric or pneumatic outputs
- Plastic range available for aggressive media

FPI MAGNETIC FLOW METER

The Micrometer FPI or Full Process Insertion Magnetic Flow Meter is ideal for capital or maintenance projects, retrofits and sites never before metered. The unique combination of accuracy, ease of installation and total cost savings make the FPI Mag the perfect choice for a wide range of municipal and industrial applications. The FPI Mag meets or exceeds exacting industry standards of 0.5% accuracy with 3rd party testing verification. The multi-electrode design and unique operating principle delivers accuracy unmatched by other insertion meters and rivals the performance of full-bore mag meters.



- Supplied with AMI/AMR Smart Output
- Simple, hot tap installation
- Accuracy: $\pm 0.5\%$ from 1 ft/s to 32 ft/s (0.3 m/s to 10 m/s)
- 316 Stainless Steel Sensor Body, Insertion Hardware and Sensor Electrodes NSF Certified 3M Fusion-Bonded Epoxy Coating
- Range: 0.3 ft/s – 32 ft/s (0.1 m/s – 10 m/s)
- Repeatability: 0.3% of reading

MAGNETIC LEVEL GAUGES

ABLE's range of magnetic level gauges offers clear indication of liquid level in any chamber configuration to suit the available process connections.

Standard chamber designs or customised configurations can be fabricated on short delivery times to suit any requirement. Exotic construction materials or economic "mini" chamber designs are also available.

- Clean non-powered visual indication of clean, dirty or translucent liquid level
- Made to suit any measuring range & vessel construction requirement
- Pressure up to 400 bar/temperature up to 450°C
- Switch & transmitter versions available
- Range of construction materials available to ensure process compatibility



AUXILIARY ATEX EQUIPMENT

ABLE supply a wide range of ATEX certified mobile equipment for surveying, data-logging and communicating in hazardous areas.

Our scope of supply includes intrinsically safe tablets, mobile phones and high-resolution cameras, all suitable for use in Zone 1/Zone 2 environments. We offer the Aegex 100M Windows Tablet, the Ecom Tab-Ex 03 DZ1 Android Tablet and Atexxo iPad (iOS) range, covering all major operating systems in hazardous areas.

We also stock the Best-in-Class Bartec PIXAVI Cam, the Cordex Extreme and the Armadex OZC digital cameras as well as the Cordex Digitherm Thermal Imaging Camera.

To complete our ATEX asset management portfolio, we supply the Bartec PIXAVI Phone and the Zone 1/Zone 2 rated Ecom Smart-Ex 02 intrinsically safe smart phones.



RF ADMITTANCE

ABLE Instruments are distributors for Drexelbrook RF Admittance level measurement technology, including continuous level transmitters & point level switches. RF Admittance is a measurement technology used for determining the level of liquids, granulars, slurries & interface in almost any containment and process environment.

RF Admittance will continue to operate in the presence of undefined and uncontrollable variables – despite coating build-up, changes in process density, pressure or temperature, level switching or continuous measurement will continue unaffected.

- Point switch & continuous level measurement
- Liquid, granular, slurry, sludge & interface measurement
- Ignores product coating & build-up on level sensor
- Fully remote electronic options – immune to vibration and temperature extremes
- SIL rated high level alarm and self-checking versions available
- ATEX Exia or Exd available



Moisture



Humidity



Density



Liquid Analysis

RADAR LEVEL

Radar and guided wave radar (GWR) can be used for level measurement on almost any liquid or solid. Both technologies are extremely reliable and virtually unaffected by changes to any media or process condition, such as temperature, pressure, density, conductivity or the presence of vapours or dust. The technology has no moving parts or recalibration requirements.

The ABLE Fusion Level Gauge is a combination of a GWR & a magnetic level gauge (see separate entry).

- High accuracy, repeatability and reliability
- Wide spectrum of applications from storage to reaction process vessels
- Unaffected by changes in density, conductivity & dielectric constant
- Comprehensive diagnostic possibilities ensure a maintenance-free operation and hence a high plant availability
- Safety rated SIL2 versions available



TRICO CONSTANT LEVEL OILERS

ABLE Instruments offer Trico constant level oilers, designed to maintain a predetermined oil level in a sump, necessary for proper lubrication. If the oil level drops below a certain point, the depleted oil automatically self-levels based on the lubricator's volume. This adds the perfect amount of lubricant every time, increasing efficiencies in the equipment and the scheduling of regularly scheduled maintenance.

Trico's Bulk Oil Storage Systems provide a safe, convenient and efficient method of storing and dispensing lubricants, saving space on the plant floor, while keeping lubricants organized and contaminant free.



- One piece glass reservoir ensures complete constant level functionality. No possibility of air leakage and overfilling of the bearing housing.
- Use in many applications due to adjustable level setting
- Large surge chamber helps prevent overflow of oil during machine start up or shut down
- Side and bottom connections provide simplified installation

ABLE FUSION LEVEL GAUGE

The ABLE Fusion Gauge is the most advanced, accurate and reliable level measurement system, combining the operation of a magnetic level indicator (MLI) with a guided wave radar (GWR) to offer two independent, proven level technologies in one system.

The MLI provides a clear, visual level display and can be supplied with a reed chain transmitter, magnetostrictive transmitter or switches for high and low level alarm requirements, operating in conjunction with the level indicator float.

The GWR offers an independent level measurement based on microwave pulses that are transmitted along a guide rod and reflected back by the liquid surface to a receiver, providing a level measurement accuracy of $\pm 3\text{mm}$.



- 2 x independent integrated technologies for redundancy
- Difference in readings between MLI and GWR offer feedback of system performance
- No calibration required on either measuring technology
- 2-wire, intrinsically safe or explosion proof, loop powered level transmitter
- HART[®] communication protocol
- Single instrument process connection to the vessel

TEMPERATURE

Our range of temperature products are available in numerous configurations to match virtually any application and include the United Electric Controls series of electronic and mechanical temperature switches, which are designed for use in rugged, industrial environments. We are able to measure and control temperature in safe or hazardous areas with a wide choice of outputs and offer a full selection of sensors and hardware.

With an integral digital display and 4-20 mA output, the United Electric Safety Transmitter can effectively do the job of three – replacing a switch, a gauge and a transmitter. "I Am Working" sensor diagnostics with redundant data processing detect open, shorted, and plugged sensing elements.



- Mechanical, electronic switches, gauges & transmitters
- Multiple sensor types, output configurations and approvals including SIL rating
- Digital display
- 100% adjustable set point and dead-band
- All solid state design
- Safety Transmitter 4-20 mA analog (NAMUR NE 43 standard, accuracy tested in real time)

GENESIS – MULTIPHASE LEVEL DETECTOR

Magnetrol's Genesis Multiphase Detector is a Time Domain Reflectometry (TDR)-based, 24 VDC level detector designed to accurately define and quantify the various layers in multiple interface level measurement applications. Encompassing a number of developments from Magnetrol's progressive engineering team, this innovative level detector can deliver a full interface profile of a vessel with performance that surpasses many of the more traditional technologies.

Utilizing patented "Top-Down" and "Bottom-Up" signals, along with advanced level detection algorithms, Genesis can be used in a wide variety of interface applications ranging from very light hydrocarbons to water-based media.



- 24VDC input with four 4-20mA outputs (including HART)
- Changing media has no effect on level measurement
- 4-button keypad and graphic LCD display
- Proactive diagnostics for scheduling maintenance
- Probe designs up to $+200^{\circ}\text{C} / 70\text{ bar}$

ONE SERIES SAFETY TRANSMITTER

By way of our long-term relationship with United Electric Controls, ABLE supply an extensive range of high quality electronic and mechanical pressure and differential pressure switches, as well as a selection of high pressure transmitters.

The series includes the UE Safety Transmitter, (inset) with an analogue output that meets the NAMUR NE 43 standard and provides process variable and detected-fault info. Discrete outputs provide a fail-safe emergency shut-down when faults are detected. Set point and dead-band are fully programmable.

Designed for rugged, industrial environments, in safe or hazardous areas, to suit virtually all pressure and differential pressure applications, the United Electric products are complimented by the Mid West range of DP gauges.



- Mechanical & electronic switches, gauges & transmitters
- Multiple sensor types, output configurations and approvals including SIL compliant models
- Digital display
- 100% adjustable set-point and dead-band
- Solid state design
- NAMUR NE43 standard



Light



Weight



Package Procurement



Training



Technical Service Support

ABLE V-TRAKKA VALVE POSITION TRANSMITTER

For continuous, direct valve position measurement, ABLE have developed a universal transmitter which can be retrofitted to most types of surface Xmas tree valves, providing an accurate, repeatable 4-20mA output correlating to the actual physical valve position. Once installed, the v-Trakka requires no maintenance.

The v-Trakka is a compact, lightweight mechanical instrument suitable for installation in the harsh well environment. The 316 stainless steel cover and rigid base provide significant protection from dirt and everyday impacts. The high-viz position marker can be viewed through the toughened-glass window slots.



- 316 stainless steel parts with full template nitrile rubber gasket and phosphate-dipped UNC bolts to prevent galvanic corrosion when mounted to a carbon steel valve body
- 2-Wire EEx d loop-powered transmitter
- Continuous direct measurement of valve position
- Universal design; Retrofits to most common top side Xmas trees valves
- Extremely stable and robust design eliminates dependence on problematic limit switches and inferred pressure measurements.

DEW POINT

ABLE are the exclusive UK sales and service partner for the Xentaur range of dew point sensors & transmitters.

Xentaur offer a reliable solution for the measurement of moisture and dew point in liquids and gases, based on their proprietary HTF aluminium oxide sensor technology. The sensors have increased sensitivity, typically twice that of conventional sensors. Advantages of HTF also include no drift, extremely low temperature coefficient and fast response.

In addition to an extensive range of fixed sensors and transmitters, designed to address applications across the process & research industries, a portable meter, the XPDM, is also available and intended for use where quick and accurate measurements are required.



For extremely high accuracy, critical dew point and relative humidity measurements in calibration laboratories and industrial processes, ABLE also offer Chilled Mirror Optical Condensation Hygrometers.

- HTF™ Sensor Technology
- Multiple housing configurations
- Long sensor life
- Capable of liquid hydrocarbon measurements
- Digital communications (HART) & analog communications (4-20mA)
- ATEX versions

VANGUARD WIRELESS GAS DETECTOR

The Vanguard WirelessHART gas detector is ideal for the monitoring of toxic and combustible gases without the need for costly and fixed wiring. With a five-year battery life and one button field calibration, the Vanguard detector is easy to operate and maintain.

Each Vanguard has a WirelessHART transceiver, an antenna, a display, a long-life power module, a gas sensor and a signal processor. Vanguard's trademarked 'Flexsense' sensor architecture allows the sensor to identify its target gas and self-configure to a Vanguard transmitter upon connection.



- Available with NDIR methane sensor (0-100% LEL) or an electrochemical hydrogen sulphide sensor (0-100ppm)
- Field interchangeable sensors
- Interoperable with existing WirelessHART® networks and asset management systems (AMS)
- Explosion-proof & intrinsically safe (ATEX)
- Easy calibration and operation

GAS ANALYSERS

Using unique, patented gold film technology and low dilution atomic fluorescence, Arizona Instrument's field proven Jeromes combine high specificity and accuracy with true portability. Their rugged design and low level detection capabilities (Hydrogen Sulphide 3ppb, Mercury 50ng/m3) are ideally suited to applications in the waste water treatment and oil & gas industries. Automated sampling, on-board data-logging and USB connectivity enable simple data retrieval and analysis. A programmable auto-sampling mode facilitates unattended monitoring.

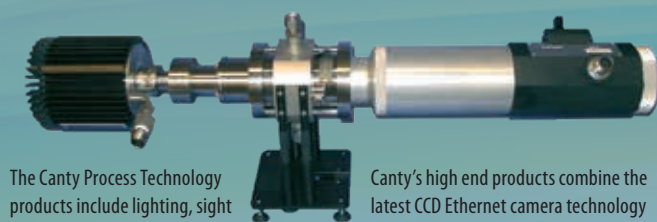
ABLE are Arizona Instrument's European Service Centre for the renowned Jerome Hydrogen Sulphide Analyser. Fundamental to this arrangement is a dedicated Jerome



calibration laboratory at ABLE's headquarters in Reading, UK. The rig derives its traceability from a certified gas reference standard and calibrated mass flow controllers.

- Specialist, patented gold film and AF detector technologies
- Low level detection capabilities
- On-board data logging (20,000 data points)
- Automated sampling options
- Portable and fixed installation variants
- SCADA interface capabilities via 4-20ma

PROCESS VISION TECHNOLOGY



The Canty Process Technology products include lighting, sight glasses, cameras, sight flow indicators, quick opening closures, glass to metal seals, vision-based process control systems, and particles sizing systems for a variety of industries including the Biotech, Pharmaceutical, Cement, Oil & Gas, Chemical, Food & Beverage, Glass and Mining Industries.

Canty's high end products combine the latest CCD Ethernet camera technology and high intensity LED lighting systems to provide microscopic, non-destructive viewing and particle size analysis in two dimensions.

- Robust FuseView sight glasses
- Fibre optic LED lighting solutions
- Intelligent process camera systems
- Liquid & solid particle analysis
- Bespoke image analysis software
- ATEX versions available

MOISTURE

ABLE are exclusive representatives and the official European Service Centre for AZI's 'loss on drying' (LOD) and moisture specific analysers.

The durable, easy to use Computrac Max 4000XL (LOD) Moisture Analyser provides quick, reliable and accurate results. This improves the ability to adjust or monitor processes ensuring quality products while minimizing waste, energy requirements and man-hours, making it an ideal choice for research, manufacturing and laboratory environments.

The MAX 5000XL moisture, solids and ash analyser offers accurate readings for both moisture and ash from a single sample at the press of a button, providing many of the features of thermogravimetric analysers at a fraction of the cost.



The Vapor Pro presents a fast, easy, Green and cost-effective alternative to Karl Fischer titration methods. The ideal choice for companies who want to make cost reductions by saving time, improving dryer efficiencies and eliminating costly reworking.

- 21 CFR Part 11 compliant (optional)
- No toxic reagents or specialized glassware
- Real-time graph of moisture curve and rate of moisture loss
- Flexible ending criteria to ensure accurate test results
- Linked test capability for multiple results from a single sample

Please visit www.able.co.uk for more information

PACKAGE PROCUREMENT



PROJECT MANAGEMENT



SYSTEM INTEGRATION



TRAINING



Established in 1985, ABLE Instruments & Controls Ltd is a UK based independently owned instrumentation supplier headquartered in Reading.

With an emphasis and history founded on supply to the Oil & Gas Industry, ABLE has significant experience and expertise in providing measurement solutions to this sector, as well as unrivalled global support utilizing our team of fully offshore trained technical engineers.

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