TT Electronics

Flow and Pressure Capabilities

Industrial Sensing and Control

Roxspur Measurement and Control

Who we are.

TT Electronics is a global provider of engineered electronics for performance critical applications. We provide our customers with engineering support and expertise through our global network of specialists and world class facilities. Our experience and understanding of highly regulated markets enables us to continue to develop and deliver reliable products and solutions for our customers, helping them solve challenging problems to meet the needs of their customers.

We provide complete pressure and flow instrumentation solutions

We supply a full range of flow and pressure products

We provide in-house UKAS calibration for flow, pressure, temperature, and electronics

We offer onsite calibration service for industrial and aerospace facilities

TT Electronics is a leading manufacturer of process measurement and control instrumentation.

We supply a comprehensive range of temperature, pressure, flow and level products designed for demanding industrial environments, aerospace, oil and gas, power generation and water management, through our Brearley, Platon, Sensit and Nulectrohms brands.

TT Electronics provides custom solutions, fully built systems comprising sensors and data loggers, UKAS accredited calibration to BS/EN/ISO 17025 procedures through Roxspur Measurement and Control. Customers have access to technical and manufacturing facilities at key locations which means staying close to the people that matter with a truly global reach.

Temperature, Pressure, Flow, Level, Systems, Calibration & Service

Flow - Instrumentation

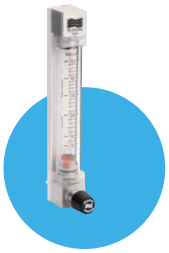
Roxspur Measurement and Control, the UK's premier manufacturer and supplier of flow measuring devices, remains the industry leader for all flow products. From individually calibrated anaesthetic flowmeters, orifice plates, ultrasonic flow meters, to pressure and flow regulators, RM&C can supply all your flow measurement and control needs.

Flow measurement technologies using 'variable area', ultrasonic, magnetic, turbine, and laminar flow principles are all available, together with a wide array of controllers, displays, gauges, switches and regulators. RM&C can also provide calibrated and certified units, via our UKAS approved laboratories, as well as customised products specifically designed to customers' requirements of temperature, pressure, flow media and flow rate.

With such a wide range of products and specifications available, RM&C supplies instrumentation across industry applications such as the utilities, gas analysis and chemical industries to name a few.

Glass & Plastic VA Flowmeters

- New and improved NGX and LGX series
- Gas flow up to 440 L/min
- Liquid flow up to 40 L/min
- Simple to install and maintain
- Customised scales
- Alarm option, ATEX approved
- Anaesthetic flowmeter range
- Safety housed versions
- UK standard

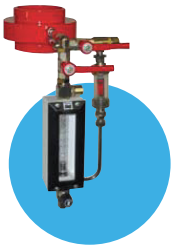


Metal VA Flowmeters

- Gas flow up to 1000 m3 /hr
- Liquid flow up to 100 m3 /hr
- Pipe sizes from 1/2" to 4" (12 to 100 mm)
- Flanged or screwed options
- ATEX intrinsically safe approval
- Configurable to customer specification
- Simple to install, use and maintain
- Alarm and transmitter options
- Low pressure drop versions
- UK standard

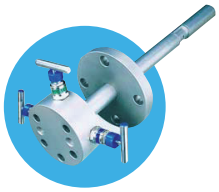
Shunt Orifice Flowmeters

- Pipe sizes from 1" to 24" (25 to 610 mm)
- Rugged well proven design
- LPCB approved models for fire sprinklers
- Flanged or victaulic fittings
- For clean liquids and gases
- Orifice plates and carrier assemblies available
- Remote indication versions



Flobar Averaging Pitot Tube

- Flow sensor for liquids and gases in pipe sizes to 3000mm (118")
- In-line and insertion models
- Stainless steel, electron beam welded construction
- Other materials options available
- No moving parts
- Low DP gas transmitter available



Flow Regulators

- Pipe sizes from 1/4" to 4" (6 to 100 mm)
- Maintains flow at selected rate
- Independent of pressure fluctuations
- Gases or liquids
- No power required
- Adjustable over wide range
- Fast response

Ultrasonic

- QuickFix for fast mounting of the flow transmitter in difficult conditions
- Non-invasive flow measurement for precise bi-directional, highly dynamic operational and standard volume flow
- Transducers available for a wide range of inner pipe diameters from 0.3 to 63 inches
- Water- and dust-tight
- Resistant against oil, many liquids, and dirt
- Robust, water-tight (IP67) transport case with comprehensive accessories

Flowmeters

VA flowmeters

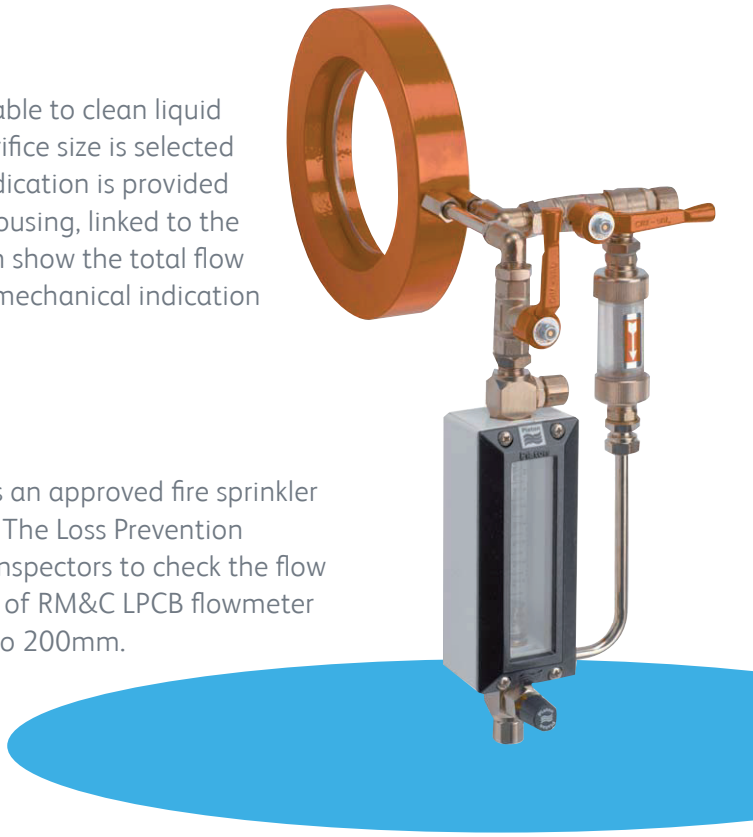
Platon variable area flowmeters are produced with glass flow tubes in various lengths, for gas or liquid flow measurement in industrial, laboratory and medical (anaesthetic) applications. Different housings support the flow-tube and provide the pipework connections needed, with precision fine control valves for flow adjustment. For larger line sizes, such as 0.5” or 1” diameter, plastic or metal tubes replace the glass tubes.

Our advanced manufacturing processes enable class leading performance in accuracy and lead times. Our fully automatic equipment incorporates highly accurate flow measurement, advanced HD visual recognition systems for float measurement, fast flow prediction software, and pin point laser marking of scales on the final product. Laser marking delivers durability, high-temperature resistance and accuracy. The process excludes toxic solvents, inks, or acids typically used in conventional processes. These significant improvements in performance and delivery enabled by the new process are practical examples of leveraging expertise within TT Electronics.

Metal tube variable area flowmeters use the same operating principles, but typically have a magnet embedded in the float to signal the equilibrium position to an external mechanical indicator. This allows the easy addition of simple flow alarms and electronic outputs - the RM&C Vampire is a microprocessor based flow transmitter and totaliser, with built-in alarm outputs. Metal-bodied flowmeters in the RM&C GMT Series are available with brass and stainless steel construction, for use on line sizes from 0.5” to 4” in size.

Orifice-plate flowmeters

The RM&C Shunt Orifice flow measurement system is applicable to clean liquid and gas flows in line sizes from 1.25” to 24” diameter. The orifice size is selected according to the fluid flow range required. The visual flow indication is provided by a RM&C glass tube VA flowmeter in an industrial safety housing, linked to the orifice plate pressure tappings. The flowmeter readings taken show the total flow along the main line. This unit offers a low-cost, un-powered mechanical indication of flow rate.



Fire sprinkler flowmeters

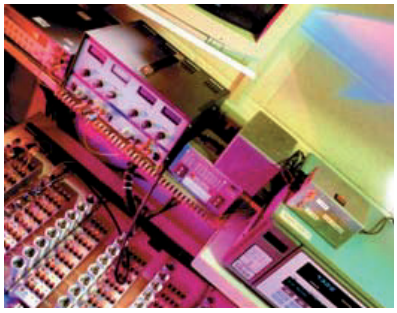
The RM&C shunt orifice meter principle has been adopted as an approved fire sprinkler system check flowmeter on automatic sprinkler installations. The Loss Prevention Certification Board requires these units to be fitted for their inspectors to check the flow available in the water delivery line. Various designs and sizes of RM&C LPCB flowmeter are available with full certification for line sizes from 50mm to 200mm.

Flobar pitot tubes

An alternative DP flow measurement system uses a Pitot tube. RM&C have developed this technique with the Flobar averaging Pitot tube. The RM&C Flobar is available for most line sizes, even above 3 metres in diameter, and with suitable flanged or screwed fittings. For smaller line sizes, complete pipe sections are produced with welded-in Pitot probes. Various styles of mechanical or electronic display can be used to convert the derived DP measurement into a line flow reading.

Pressure - Instrumentation

Since 1988 the Sensit brand has been a world leader in ceramic strain gauge technology and is the only UK manufacturer of ceramic sensors. From low cost OEM ready to use pressure capsules to fully packaged transducers, our expertise provides solutions.



Ceramic based sensors provide not only unrivalled abrasion resistance but also superb chemical and corrosion resistance. Operating over a wide temperature range and with high overpressure capability, our range also offers outstanding linearity.

These properties have enabled RM&C products to be used in such diverse applications as the automotive, petrochemical, printer and dairy markets, for pressure, level, depth, torque or switching point identification and measurement. Measured media ranges from gases and liquids such as high-pressure hot crude oil and corrosive slurries, to dairy products and water.

Ceramic Pressure Sensors

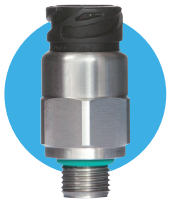
- Pressures: 0-100mb to 0-1000 bar
- Temperatures: -25 to 130°C
- Gauge or Absolute pressure
- Small size - 19mm diameter
- Superb chemical & corrosion resistance
- Span 1.0 -5.0 mV/V

OEM Transducers

- Customer specific design
- Mechnical/electronic interface
- Improve design - reduce costs
- Problem solving - broad expertise
- Quick delivery prototypes
- Ability to interpret customer's requirements

Pressure Transducers and Transmitters

- Output options: mA, mV or voltage
- Pressures: 100mb to 600 bar
- Temperatures: -25 to 130°C
- Three classes of accuracy
- Stainless steel housing
- Intrinsically safe versions available



Submersible Pressure Transducer

- Pressures: 1 to 500mWG
- Temperatures: -10 to 60°C
- Output: two wire, 4-20mA
- Lightning protection as standard

Slurry Transmitter

- Unrivalled abrasion resistance
- Pressures: 5 to 100bar G or Abs
- Temperatures: -25 to 100°C
- Output: two wire, 4-20mA
- Other output options available
- Stainless steel case

Flush Diaphragm Transmitters

- Unrivalled abrasion resistance
- Pressures: 5 to 50bar G or Abs
- Temperatures: -25 to 100°C
- Output: two wire, 4-20mA
- Other output options available
- Stainless steel case

Ceramic Pressure Technology

Ceramic pressure technology

Modern ceramics are remarkable engineering materials whose properties are particularly suited to pressure sensor construction. We use high-grade ceramic to develop the next generation of high quality high reliability pressure Sensit sensors.

Ceramic has almost perfect elasticity throughout its load range; as strong as steel in compression but with an elastic modulus 1.6 times that of steel. Ceramic is one of the most inert substances known, it is extremely hard and acts as an electrical insulator. It's eminent suitability for low cost, thick film processing allows high quality stability fusion of strain gauges and glass sealing of the capsule. The complete range of RM&C transducers utilises these characteristics.

In RM&C's state-of-the art thick-film facility, the strain gauge bridge is fired to a ceramic diaphragm. Intimate fusing of the gauges into the perfectly elastic ceramic material at 1000°C ensures superb linearity and stability. Glass fusion of the diaphragm to a rigid ceramic case results in a self-contained, hermetically sealed pressure capsule. The inherent properties of the balanced bridge impart excellent thermal characteristics that match those of many other sensor technologies after temperature compensation.

- High output
- High frequency response
- Superior long term stability
- High overpressure capability
- Superb chemical/corrosion resistance
- High electrical isolation
- Excellent linearity
- High impedance bridge
- Wide temperature range
- Small diaphragm deflection
- Unrivalled abrasion resistance
- Non-magnetic properties

Pressure sensors, tranducers & transmitters

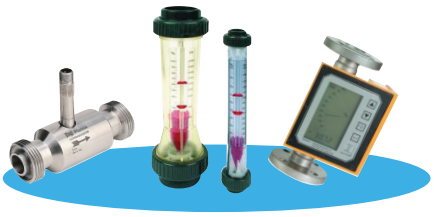
Using our in-house skill in mechanical, electronic and software design, we will produce a product to meet your requirements. If you need a product to survive in the most arduous environments - we can do it. We have approvals for ATEX IS and have an ISO9001 quality system.

The possible applications of Roxspur's transducers are limitless. RM&C products have been specified in extreme applications ranging from the Arctic to the desert, from the deep sea to high in the sky. Where there is a pressure measurement requirement, RM&C can fill it. The incredible properties of ceramic enable RM&C to continue measuring where even the finest stainless steels will corrode; where even the hardest materials will wear away; where electrical isolation is vital; where frequency response is essential; where delivery, quality and cost of ownership are paramount.

TT Electronics

Product Applications

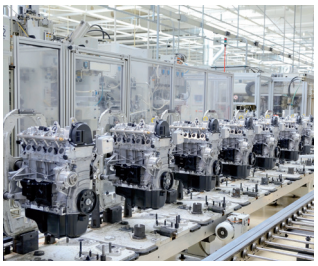
From concept to manufacture, our engineering teams aim to build strong partnerships with customers to provide enhanced solutions for performance critical technologies.

Products:	Applications	Key Features and Benefits:
Flow Meters 	• Gas or liquid flow • Gas turbines • In-laboratory • Defence • Test and measurement	• BSP/NPT screwed end fittings • Brass or stainless steel housing • 15, 25, 50 mm. 1/2", 1", 2" bore sizes; wide flow ranges • Local indication; optional electronic outputs • Offers integral damping on gas flow lines; digital signal processing • Calibration for wide range of compatible media
Temperature Sensors 	• Aerospace • Heat treatment • Metal and steel processing • Glass • Food and beverage	• Bespoke manufacture • Temperature range: -196°C to +1800°C • UKAS calibration • AMS2750 /NADCAP compliant • Fast turnaround • Some standard configurations stocked
Pressure Sensors and Transmitters 	• Oil and gas • In-laboratory • Test and measurement • OEM • Medical equipment • Off-Highway	• Small, rugged and economical; • UKAS and traceable calibration • 1 % total error band (-40°C to -105°C) • V, mV, and mA outputs • Packard, M12 Mini DIN • Bespoke designs available

TT Electronics
Roxspur Measurement & Control Ltd
2 Downgate Drive
Sheffield
South Yorkshire S4 8BT
United Kingdom

www.roxspur.com
www.ttelectronics.com

TT Electronics



Reservoir/river level
Borehole level

OEM inkjet printers

Tank level/marine
Train braking

Cable protection

Automotive highway vehicles

Oil extraction

Milking systems

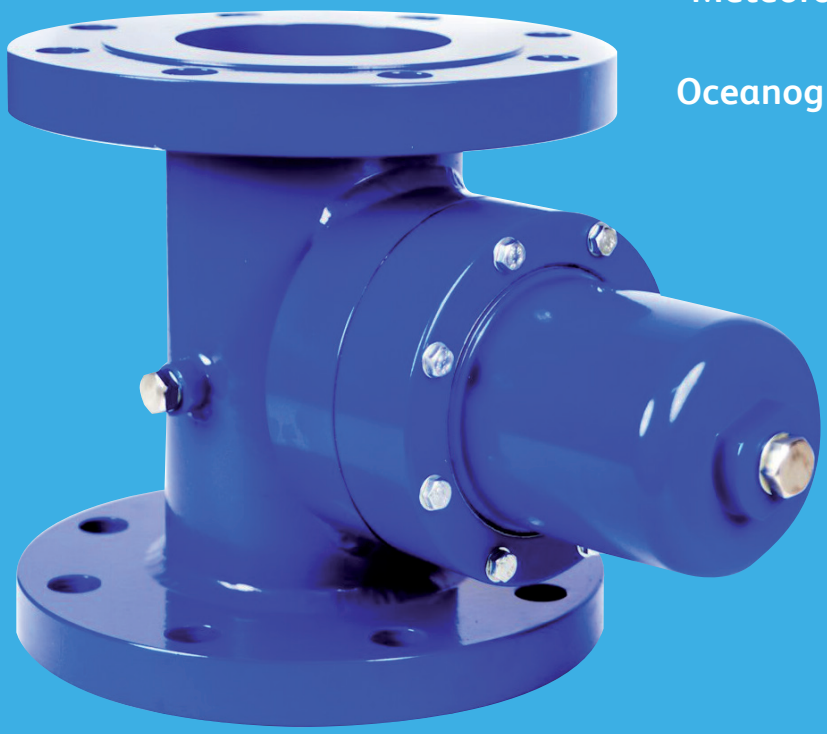
Medical equipment
Meteorology

Hydraulic/pneumatic systems

Oceanography

Pulp/paper production
Waste water

Sewage treatment



www.ttelectronics.com

General Note TT Electronics reserves the right to make changes in product specification without notice or liability.
All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

© TT Electronics plc