



Water and Wastewater
Instrumentation
PRODUCT GUIDE





Water and Wastewater Measurement and Control

Smart Storm, an ISO 9001:2015, company is the UK's Leading Manufacturer of Water and Wastewater Instrumentation and Systems, including water level, flow, wastewater sampling and water quality measurement.

Our instrumentation differs from other manufacturers since it utilises the most advanced and latest technologies to ensure the most accurate measurement whilst offering a truly unique user-friendly programming experience, not seen in other instruments. From large touch screen, graphic displays to intuitive pictorial menu choices the Smart Storm product range is child's play to programme and install.

We offer a complete range of water and wastewater flow and level meters that meet the needs of all industries including food and drink, chemical, pharmaceutical, marine and agriculture. Our water quality meters are multi-functional and cover water parameters including ammonia fluoride, chloride, turbidity, dissolved oxygen and many more ...

Our sludge blanket monitor outperforms all other manufacturers in identifying extremely low-density blankets in secondary clarifiers whilst our comprehensive range of wastewater samplers offer features and benefits not seen in the market before.

With our Greasebuster® fat skimmer and our range of bacterial additives we offer solutions for removing fats oils and greases (FOG) in the most extreme environments.

As a manufacturer, Smart Storm is both knowledgeable and experienced in the measurement and application of water and wastewater instrumentation.

Should you have any questions or help in selecting the correct product our friendly, professional and knowledgeable staff will help you every step of the way.



The 'Smart' Concept

CONTENTS

Flow Meters	4
Level Meters	7
Water Quality Meters	8
Sludge Blanket Detector	9
Sensors	10
Wastewater Samplers	11
Fats, Oils & Grease Removals	12
Weirs & Flumes	14
Frequently Asked Questions	15

USI Universal Smart Instrument



The **USI** is designed to input several parameters on a single, easy to programme instrument – meaning the user saves on both purchasing and operating costs.

The **Universal Smart Instrument (USI)** is an innovative monitoring instrument and data logger that delivers multi-parameter measurement in a single device. Several standard instruments can therefore be replaced by a single **USI** in a wide range of clean water and wastewater applications.

Whilst giving highly accurate and reliable monitoring, the **USI** sets itself apart from traditional instrumentation by utilising powerful processors (as used in smartphones and satellite navigation) and dynamic software to display real-time data and graphs.

It features a user-friendly touch screen interface, multiple inputs and outputs, a 20-year data logger and simple intuitive programming nothing in the market competes with the **USI**.

This provides the user with unrivalled accessibility and clarity of information.

USM Universal Smart Meter



The **USM** is a small but powerful, low cost meter

The **Universal Smart Meter (USM)** is designed for smaller budgets but with a user-friendly interface, a 4-20mA output and also a 20-year data logger as standard. Its four button keypad allows fast and simple programming. The intuitive menu guide the user through clearly worded choice fields and help the user to navigate to a successfully programmed unit in a matter of minutes.



Flow Meters – Open Channel Type

Intelligent Flow Monitoring – Smart Storm manufactures a range of instruments to measure flow in open channels and closed pipes for all industrial sectors.

The **USI** has been specifically designed for trade effluent monitoring and wastewater plant inlets and outlets. The **USI** not only measures flow but also water quality parameters including pH, turbidity, dissolved oxygen and conductivity.

The **USM** is a low-cost flow meter designed for smaller budgets but with a user-friendly interface.

For irrigation channels and flow surveys we offer a range of **Area Velocity Meters**.

The **S3000 Range of Induction Flow Meters** offer outstanding performance for all closed pipe applications and are available with integral or remote displays.



USI Flow



FEATURES

- Advanced Ultrasonic Open Channel Flow Meter
- 8 x channel types and 32 point look-up table
- Integral pH meter
- Optional turbidity, dissolved oxygen, temperature and conductivity inputs
- 6 x programmable relays
- 4-20mA inputs and outputs
- Integral 20-year data logger
- Cloud data transfer
- Quick and simple user-friendly programming
- PC based reporting software
- Touch screen colour display
- IP65 wall mounted weatherproof enclosure

USM Flow



FEATURES

- Ultrasonic Open Channel Flow Meter
- 8 x channel types and 32 point look-up table
- 6 x programmable relays
- 4-20mA output
- Integral 20-year data logger
- Quick and simple user-friendly programming
- PC based reporting software
- IP66 / 4X wall mounted weatherproof enclosure

USI – APPLICATIONS

- Trade Effluent Monitoring
- Wastewater Monitoring
- Drinking Water Monitoring
- Water Quality Monitoring
- Seawater Monitoring
- Irrigation Channels
- Storm Water Monitoring

USM – APPLICATIONS

- Trade Effluent Monitoring
- Wastewater Monitoring
- Irrigation Channels
- Storm Water Monitoring
- Flow Surveys



Flow Meters – Closed Pipe Type



APPLICATIONS

- Trade Effluent Flow
- Wastewater Flow
- Chemical Flow
- Drinking Water Flow
- Wide range of Application Industries including Food, Chemical and Pharmaceutical

USI Magflow



FEATURES

- Advanced Closed Pipe Induction Flow Meter
- Supports two channel flow measurement
- Pipe sizes DN10- to DN300
- Optional turbidity, dissolved oxygen, temperature and conductivity inputs
- 6 x programmable relays
- 4-20mA inputs and outputs
- Integral 20-year data logger
- Quick and simple user-friendly programming
- PC based reporting software
- Touch screen colour display
- IP65 wall mounted weatherproof enclosure

S3000 Magflow

FEATURES

- Wide measurement range up to 12m/s (pipe sizes DN10-DN1200)
- Temperature operating range up to 150°C
- Self cleaning electrodes
- Liners – hard rubber (TG), soft rubber (MG), special rubber (NG), PTFE (T)
- Integral or remote display
- Simple user-friendly programming
- IP66 or IP68 sensor
- Rugged construction
- Low maintenance
- Long life product





Flow Meters – Area Velocity Type



USI – APPLICATIONS

- Sewer Flow Monitoring and Data Logging
- Irrigation Channels
- Wastewater Monitoring
- Storm Water
- Open Channel Water Monitoring
- Flow Surveys
- Combined Flow and Water Quality Measurement

USM – APPLICATIONS

- Sewer Flow Monitoring and Data Logging
- Irrigation Channels
- Wastewater Monitoring
- Storm Water
- Open Channel Water Monitoring
- Flow Surveys



USI Area Velocity



FEATURES

- Advanced Area Velocity Flow Meter
- Up to 10m/s velocity
- Optional turbidity, dissolved oxygen, temperature and conductivity inputs
- Integral pH/ISE meter
- 6 x programmable relays
- 4-20mA inputs and outputs
- Integral 20-year data logger
- Quick and simple user-friendly programming
- PC based reporting software
- Touch screen colour display
- IP65 wall mounted weatherproof enclosure

USM Area Velocity



FEATURES

- Area Velocity Flow Meter
- Up to 10m/s velocity
- 3 x programmable relays
- 4-20mA output
- Integral 20-year data logger as standard
- Quick and simple user-friendly programming
- PC based reporting software
- IP66 / 4X wall mounted weatherproof enclosure

Level Meters

Smart Storm Level Meters offer a degree of intelligence and ease of programming not seen in other instruments.

Both instruments measure and display level; volume and tonnes, and are ideal for pump control. Unique to the Smart Storm products is the ability to display ultrasonic echo profiles directly on the screen and to map out interfering echos.

The **USI** is an innovative, two channel level instrument with integral data logger. It features a powerful pump controller with simulation programmes to test pump sequencing, simple and intuitive programming, graphical tank selection, multiple inputs and outputs and much, much more.

The **Universal Smart Meter (USM)** is a low-cost flow meter designed for smaller budgets but with a user-friendly interface.



APPLICATIONS

- Level, Volume and Tonnes Measurement
- Solids and Liquids Measurement
- Pump Control
- Position Measurement
- Non-contact Measurement
- Chemical, Food, Mining, Pharmaceutical and many more industries

USI Level Meter



FEATURES

- Up to two sensors as standard
- 9 x standard tank shapes and 32-point look up table
- Pump control simulator inbuilt
- Echo profiling
- Pump control simulator inbuilt
- 6 x programmable relays
- 4-20mA inputs and outputs
- Integral 20-year data logger
- Up to 20m range
- Quick and simple user-friendly Windows programming
- PC based reporting software
- Touch screen colour display
- IP65 wall mounted weatherproof enclosure



USM Level Meter



FEATURES

- Level Meter for Liquids and Solids
- 9 x standard tank shapes and 32-point look up table
- 3 x programmable relays
- 4-20mA output
- Echo profiling
- Integral 20-year data logger
- Up to 20m range
- Quick and simple user-friendly programming
- PC based reporting software
- IP66 / 4X wall mounted weatherproof enclosure

Water Quality Meters



Smart Storm's range of **Water Quality Meters** offer simultaneous multi-parameter measurement and are ideal for water quality measurement in all industries.

The **USI** unit is uniquely designed for wastewater flow and simultaneous water quality measurement. It comes standard with an ultrasonic sensor for flow measurement and an integral pH/Redox meter; up to four water quality sensors can be added, so one **USI** can replace several standards units.

The **USM** is a powerful and versatile meter that measures a wide range of environmental parameters. The unit will measure one of a number of ISE (Ion Selective Electrodes) plus an additional optional Modbus electrode (two parameters at the same time). The **USM** is ideal for smaller budgets but where quality is still required.



USI APPLICATIONS

- Trade Effluent Monitoring
- Wastewater Monitoring
- Drinking Water Monitoring
- Water Quality Monitoring
- pH Dosing
- Seawater Monitoring
- Irrigation Channels
- Storm Water Monitoring
- Combined Flow and Water Quality Measurement

USI APPLICATIONS

- Wastewater Analysis
- Clean Water Analysis
- Chemical Analysis
- pH Balancing
- Fluoridation
- Pools and Spas
- Aquaculture
- Chemical Dosing Control

USI Flow & Water Quality



FEATURES

- Advanced Open Channel Flow meter with integral pH/ISE meter
- Ultrasonic Sensor as standard
- Optional turbidity, dissolved oxygen, temperature and conductivity inputs
- Optional measurement of ammonia, ammonium, chloride, calcium, fluoride, nitrate, potassium.
- 6 x programmable relays
- 4-20mA inputs and output
- Integral 20-year data logger
- Cloud data transfer
- Quick and simple user-friendly programming
- PC based reporting software
- Touch screen colour display
- IP65 wall mounted weatherproof enclosure

USM Water Quality Meter



FEATURES

- Water Quality Meter Meter
- Standard and Logger Version available
- Range of Modbus sensors from conductivity to turbidity
- A range of ISE measurements from pH/Redox to potassium
- 3 x programmable relays
- 4-20mA output
- Optional 20-year data logger
- Quick and simple user-friendly programming
- PC based reporting software
- IP66 / 4X wall mounted weatherproof enclosure

Sludge Blanket Detector

The **Avocet Sludge Blanket** monitors the sedimentation and scum accumulation in remote settlement tanks and clarifiers in water treatment works, wastewater reclamation works and factories with treatment plants.

The **Avocet** is particularly suited for identifying auto-desludging and overspill alarm signals, and for monitoring the general biological health of thick sludge blankets.

The **Avocet Sludge Blanket** gives highly accurate measurements of sludge blanket composition in settlement tanks and clarifiers by utilising extremely high frequency ultra-sound sensors (1.1 MHz) that can detect the lowest sludge density found in secondary clarifiers.



APPLICATIONS

- Water and Wastewater
- Primary Sedimentation
- Secondary and Final Clarifiers
- Remote Settlement Tanks
- Sludge Thickeners
- DAF Tanks
- Sequential Batch Reactors
- Mining and Process Settling Ponds and Lagoons

Avocet Sludge Blanket Detector



FEATURES

- Powerful Signal Processing to Extract Low Density Sludge Interface
- Air purged sensor cleaning
- Optional RF link
- 3 x programmable relays
- 4-20mA output
- 12 metre range
- Graphical display of sludge interface
- Simple programming
- IP65 wall mounted weatherproof enclosure

Sensors



Smart Storm offers a wide variety of sensors for flow, level and water quality measurement including area velocity. **Smart Storm sensors** are designed to be durable and accurate in all industrial applications, and most offer IP68 protection.

Digison Ultrasonic Sensors

FEATURES

- High accuracy
- Intelligence built in
- IP68 rating/ NEMA 6P
- 3m-20m range
- Integral temperature compensation
- Narrow beam angle
- Encapsulated sensor
- Unique radial ultrasonic crystal
- Excellent chemical resistance



Area Velocity Sensors

FEATURES

- Robust dual wave Doppler sensor
- 10m (33ft) depth
- 0-10m/s velocity
- High resolution
- Low profile
- Plug and play



Modbus Water Quality Sensors

FEATURES

- Intelligent digital sensors
- No membrane or electrolyte
- Turbidity, suspended solids, conductivity, dissolved oxygen, pH/Redox
- Integral temperature sensor in all sensors
- Robust construct
- Simple calibration
- Low power consumption
- Universal Modbus 485 protocol
- Plug and play



Environmental Ion Selective Electrodes

FEATURES

- Low cost sensors
- Solid state
- No membrane to fail
- pH, Redox, ammonia, ammonium, calcium, chloride, fluoride, nitrate, potassium
- $\frac{3}{4}$ " NPT rugged fitting



Wastewater Samplers - Hydrocell



The USI Hydrocell range of wastewater samplers are specifically designed for the composite collection of wastewater samples from industrial and municipal applications.

A robust industrial design with state-of-the-art touch screen programming, integral data logger and graphical display makes the Hydrocell the product of choice for all your wastewater sampling needs.

APPLICATIONS

- Municipal & Industrial Water and Wastewater Treatment
- Food, Mineral and Chemical Processing
- Power Plants
- Petrochemical, Pharmaceutical & Manufacturing Industries
- Pulp and Paper Industry
- Sewers
- Tanks
- Open Channels
- Sumps
- Reservoirs
- Lakes and Rivers

Hydrocell 1 Non Refrigerated Wastewater Samplers



FEATURES

- 8 metre suction lift
- 10 litre bottle
- Robust peristaltic pump works on pressurised pipes up to 2 bar
- Data logger
- Intuitive user-friendly programming time or event triggered
- Advanced touch screen full colour display
- IP65

Hydrocell 2 Non Refrigerated Wastewater Samplers



FEATURES

- 8 metre suction lift
- 2 x 10 litre bottle
- Robust peristaltic pump works on pressurised pipes up to 2 bar
- Intelligent distribution arm time or event triggered
- Data logger
- Intuitive user-friendly programming
- Advanced touch screen full colour display
- IP65

Hydrocell 4/8 Refrigerated Wastewater Samplers



FEATURES

- Thermoelectric cooler with no moving parts
- 8 metre suction lift
- 4 x 10 litre or 8 x 4 litre bottles
- Intelligent distribution arm
- Integral heater as standard
- Robust peristaltic pump
- Data logger
- Intuitive user-friendly programming
- Advanced touch screen full colour display
- IP65

Fats, Oils & Grease Removals

The **Greasebuster®** is an innovative solution that removes fats, oils and grease, known as FOG, from wastewater tanks and systems – removes the need for a grease trap. The unit uses a hydrophobic belt which attracts non-polar liquids such as fats, oils and greases (FOG) whilst rejecting water.

The **Greasebuster®** sits in a reception tank and the belt continuously rotates through the surface collecting FOG whilst the water runs back into the tank. The unit comes standard with a control panel to control; belt speed, timer functions and collection vessel temperature control. Also included is a range of mounting brackets.

Greasebuster®



APPLICATIONS

- Municipal Treatment Plants and Sewerage Networks
- Industrial Effluent Streams containing Fats, Oils and Grease
- Food, Mineral and Surface Solids Removal
- Oil Contaminated Water Cleaning
- Heavy Duty Oil Removal
- Sludge Removal

FEATURES

- Removes fats, oils and grease whilst rejecting water
- Prevents pipe and sewer blockages
- Reduces wastewater bills through COD and solids reduction
- Reduces risk of environmental prosecution
- Removes microthrix, filamentous growth and floating solid waste
- Belt speed control and thermostatic temperature control
- Removes up to 4m³ of FOG per day
- Simple installation
- 24/7 operation
- Temperature range of operation up to 50°C





BACTERIAL TREATMENT

In addition to the **Greasebuster®** mechanical removal of fats, oils and greases, Smart Storm offer a range of biological treatments that reduce and eradicate FOG.

Biobloc 22 is an innovative, self-contained eco-friendly solution for maintaining pumping stations, lift stations and large grease traps. **Bioblock 22** is simply suspended in the pit and the surfactants, penetrants and bacteria, loosens and liquefies heavy grease deposits which are then digested by the target bacteria. The block slowly dissolves over time with a single block lasting a month in a 40m³ tank. An added advantage of **Bioblock 22** is that it also reduces odour.

FEATURES

- Keep pumping stations and grease traps clean
- Reduce grease build-up headaches
- Prevent emergency blockages
- Save on line jettings
- Lower grease disposal costs
- Reduce odours

Drain Flush uses a multi spore blend of 14 strains of bacteria and biological enzymes.

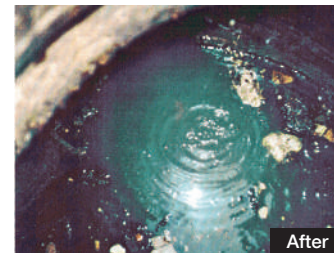
These strains of natural, non-genetically modified bacteria have been chosen because of their synergistic and natural properties to combat all forms of fat, oil and grease build up. Not only does **Drain Flush** attack and eliminate existing fats, oils and greases but this advanced bacterial formulation also 'lines' drains to create a 'BIOFILM'. The 'BIOFILM' continues to protect, repel and digest greases and organics throughout the day. If you have grease traps already installed you will find that the bacteria will also reduce the build-up in the traps and reduce the number of times that they need emptying. Smart Storm offer an automated dosing system to inject **Drainflush** into drains or grease traps at timed intervals.

FEATURES

- Free running drains and pipe work
- Elimination of drain line odours
- Environmentally friendly
- No more blocked drains and plumber call outs
- No more disruptions to operations
- No more flood damage to property
- Reduces insect and rodent infestations
- Helps maintain existing grease traps

APPLICATIONS FOR BIOLOGICAL TREATMENTS

- Lift and Pumping Stations
- Restaurants
- Fast Food Outlets
- Food Manufacturing
- Schools
- Hospitals
- Hotels
- Leisure Complexes
- Wastewater Plants





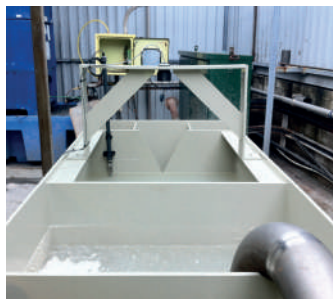
Weirs & Flumes

Smart Storm manufacture polypropylene **V-notch Weir Tanks** that come complete with integral sensor bracket and steel reinforced bands. They are fully compliant to BS3680 and ISO 1438 standards.

Smart Storm manufacture BS3680 rectangular **Flumes** in either stainless steel or polypropylene to suit customer requirements. **Flumes** are available as complete structures with integral approach channel or as flume cheeks to retrofit into an existing channel.



V-Notch Weir Tank



FEATURES

- Non-contact measurement
- High accuracy
- Simple installation
- Simple calibration
- Easy to maintain

Flumes



FEATURES

- Ability to measure higher flow rates than a comparably sized weir
- Less head loss (generally $1/4$ th that of a weir)
- The ability to pass debris more readily
- Self-cleaning flumes
- Wide range of styles and sizes
- Smaller installation footprint
- Less rigorous maintenance requirements

APPLICATIONS

- Industrial Trade Effluent
- Treatment Works
- Irrigation
- Storm Water
- Water Supply
- River
- Mining