Flow:watch

Micronics Flow and Heat Meter Product Catalogue

micronics

Through Measurement Comes Control

Welcome to the latest edition of our Flow:watch brochure where you will find some exciting new products that ideally complement our expanding range of flow measurement equipment.

Over twenty five years of manufacturing our own Portable and Fixed non invasive clamp-on ultrasonic flow meters has given Micronics the edge you need when it comes to quality, reliability and not forgetting that all important word - **service.**

In this catalogue you will find our standard range of products and some useful accessories.

Micronics enjoys a close working relationship with all our customers throughout the UK, Europe and the Rest of the World.

Our experienced and dedicated staff will gladly be at your disposal whatever the requirement.

Customer service is our watchword and should you decide to buy from Micronics, our internal sales team will make sure the experience is a pleasant one.

Michael Farnon
Managing Director

What are the benefits of using clamp-on flow and energy monitoring Technology?

- No interruption to the process
- Easy to install
- Can be used on low conductivity liquids
- Non intrusive for sterile applications
- Unlimited pressure rating with zero pressure loss - Energy efficient!
- Wide temperature range
- Ideal for temporary applications
- No moving parts
- Low cost installation
- No down time for maintenance
- Analysis of flow data
- Easy to use equipment with minimal operator training

Transit Time flow meters -

Transit time flow meters are ideal for measuring the flow of clean, non-aerated fluids in full pipes.They work best when there is less than 2% particulate.

Recommended For:

- ☑ potable water
- ☑ river water
- ☑ cooling water
- ☑ demineralized water
- ☑ water/glycol solutions
- ☑ hydraulic oil
- ☑ diesel and fuel oils
- ☑ chemicals

Doppler flow meters -

Ideal for measuring flow of any liquid containing gas bubbles or solids larger than 100 microns and in concentrations greater than 75ppm.

Recommended For:

- ☑ sewage
- ☑ treated waste water
- ☑ aerated water
- ☑ sludge and slurries
- ☑ chemicals and solvents
- ☑ viscous liquids
- ☑ abrasives
- ☑ food products
- ☑ pulp stock
- ☑ acids and caustics

Micronics - About Us

Choose Micronics for all your flow monitoring - We are the people with the service and products for you

visit micronicsflowmeters.com available in English, French, Spanish and German

Micronics Ltd commenced trading in 1985 and was set up to design and market "Clamp-On" ultrasonic liquid flow meters for industry and commerce.

Since its inception Micronics have sold clamp-on meters in more than 80 countries, concentrating mainly on portable "Time of Flight" meters, some of which are marketed under the registered trade name of Portaflow™.

Portaflow

From the introduction of the first portable instrument the company now markets a range of different products incorporating "Time of Flight" and "Doppler" technology. The range includes portable instruments and fixed meters based on the use of non-invasive ultrasonic sound transmission to detect liquid flow velocity within closed pipes or open channels. There are also Energy options for the clamp-on, fixed and portable meters.

In addition Micronics offer flow measurement solutions, combining the Micronics product range with Flow Analysis software and expert staff to conduct flow surveys.

From our offices and manufacturing facilities to the west of London in High Wycombe, we supply and support a broad customer base both in the UK and abroad. Our large network of distributors provide the same high level of Micronics service wherever you may find yourself around the world.

Visit our website:
www.micronicsflowmeters.com
where you can find all the information about our products and services. Keep up to date with our latest product and exhibition news - if you are looking for a particular application case study or some engineering data, you will find it here with our easy to navigate pages.

www.micronicsflowmeters.com

CASE STUDIES

Terminal 5

Micronics provide Clamp-On, Non-invasive, Thermal Metering Solutions for BAA - Terminal 5 Heat Measurement

In response to the Terminal 5 specification for Clamp-On Ultrasonic Heat Meters for simple maintenance, high availability and minimum down time Micronics have supplied the CALEC® ST Integrator combined with the U2000* Clamp-On Ultrasonic Flow meters.

The CALEC® ST - Ultraflo 2000 combination provides an innovative and cost-effective energy measurement solution for fixed or temporary applications. Configured for Heating or Cooling applications the system elements for a composite thermal meter application comprise:

- One Clamp-On, non-invasive Flow Meter
- One Pair of Temperature Sensors - 2- or 4-wire PT100 or PT500 temperature sensors
- One Integrator / Energy Calculator

Custody Transfer meters require immersion temperature sensors, however, for monitoring and general energy management applications, Clamp-On sensors can be used providing a totally non-invasive system.

Associated benefits include no disruption of services or problems associated with system drain down for maintenance, providing minimum downtime and maximum availability plus significant reductions in meter supply and installation costs for large meter or retrofit applications.

The system can be applied in a stand-alone mode and communicate totalized energy and volumetric values or selected alarm conditions via relay outputs or integrated with BEMS, AM&T or Billing systems via M Bus and other industry standard communications.

* The U2000 has since been updated to the U3000, see page 12/13 for details.

BUILDING SERVICES

PORTABLES

PF330

- For "clean" liquid monitoring
- To suit pipes DN 13mm-5000mm
- 200,000 point logger and software
- Non invasive sensing
- Portable and Easy to use

Portaflow 330

Carry Case: – The PF330 is supplied in a hard wearing IP67 carry case.

'A' Transducers: – 13mm DN to 115mm DN pipes.

'B' Transducers: – 50mm DN to 2000mm DN pipes.

'D' Transducers: – 1500mm to 5000mm DN pipe.

Transducer Operating Temp: – 'A'&'B' -20°C to +135°C. 'D' -20°C to +80°C.

Optional Hi-Temp: -20°C to +200°C.

Outputs: – Opto Isolated 0/4 –20mA; RS 232/USB;
Pulse output - programmable pulse width from 2ms - 500ms or frequency.

Data Logging: – 200,000 data points. Up to 20 named recording blocks. Data displayed locally in text or graph format. Real time or stored. Can be downloaded via RS232 or USB port to Windows based PC. Flow rate and totals can be logged.

- Flow Range – 0.1m/sec to 20m/sec bi-directional
- Display – 64 x 240 pixels graphic display
- Programming via 16 key control panel
- Battery or mains operation
- Rechargeable battery
- Battery Life – 20 hours from fully charged, depending on load
- Power – 110 – 240VAC +/-10% supply via PSU
- 10 user selectable languages including English, German, French, Spanish and Russian!
- Accuracy ± 0.5% to ± 3% depending on pipe size for flow rate >0.2m/s
- CE approved

Complementary Products

• Portable CalecST Energy

• Thickness gauge

• Thermal Printers

PORTABLES

PF220

- For "clean" liquid monitoring
- **A** version for pipes DN 13mm-115mm
- **B** version for pipes DN 50mm-1000mm
- Non invasive sensing
- Portable and Easy to use

Portaflow 220

Carry Case: – Polypropylene case, with foam insert and double wall for extra strength.
PF220A with 'A' Transducers: – 13mm DN to 115mm DN pipes.
OR
PF220B with 'B' Transducers: – 50mm DN to 1000mm DN pipes.
Transducer Operating Temp: – 'A' & 'B' -20°C to +135°C.
Outputs: – Opto Isolated 0/4 –20mA; Pulse output - programmable width from 2ms-500ms or frequency.

- Flow Range – 0.1m/sec to 20m/sec bi-directional
- Display – 64 x 240 pixels graphic display
- Programming via 16 key control panel
- Battery or mains operation
- Rechargeable battery
- Battery Life – 20 hours from fully charged, depending on load
- Power – 110 – 240VAC +/-10% supply via PSU
- 10 user selectable languages including English, German, French, Spanish and Russian!
- Accuracy ±0.5% to ±3% depending on pipe size for flow rate >0.2m/s
- CE approved

Complementary Products

- Portable CalecST Energy

- Thickness Gauge

SOFTWARE

PortaGraph III / Doppler

- Quickly download your valuable data
- Simple setup and easy to use

Transit Time Software - PortaGraph III

- For use with PF330 and U4000
- For Windows 98 / XP / Vista / 7
- Quickly graph downloaded data and export to Excel

Complementary Products

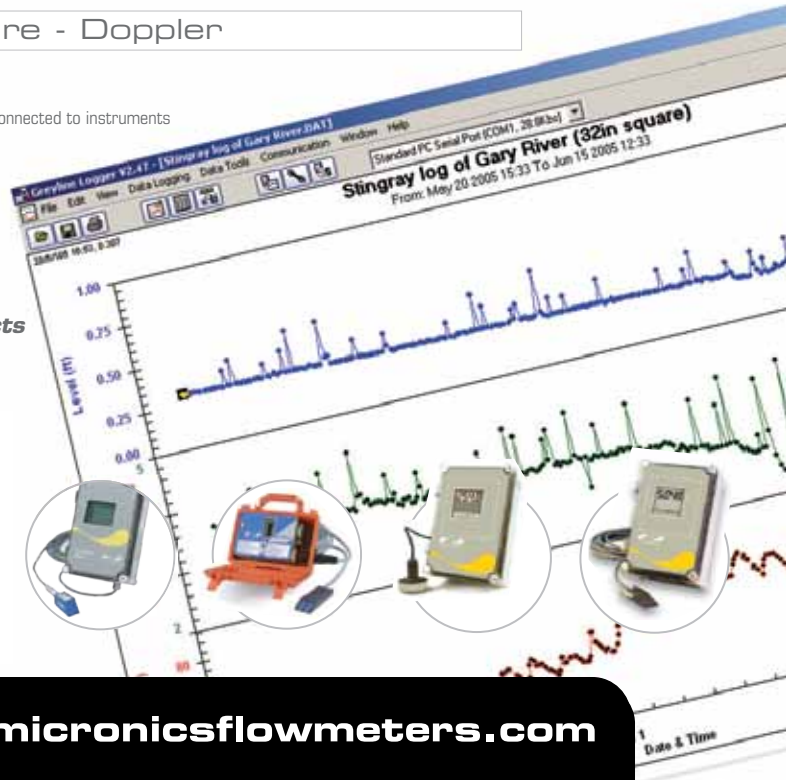
- U4000
- PF330

Logger Software - Doppler

- For use with Doppler instruments
- Dial in function when modems are connected to instruments
- Quickly graph the downloaded data and export to Excel
- For Windows 98/XP

Complementary Products

- PF D550
- UF D5000
- PF LV550
- UF AV5000
- UF OC5000



PORTABLE HEAT METER

- Heatmeter for use with U3000, PF330 and PF220
- Use with external datalogging for recording long-term energy measurements
- Non invasive sensing
- Portable and Easy to use

Complementary Products

- Portable Flow meters
- Pulse 101 data logger

Portable Heat Meter

- Compatible with any flow meter with a pulse output
- Quick and easy setup
- Use with external datalogger for temporary energy monitoring
- Kwh Total, instant energy, volume and temperature readings

Sensor Probes:- 4 wire PT100 clamp-on 150mm probes.
Temperature Range:- 0°C to +180°C.
Power:- Battery powered.
Option:- External datalogger.
Replaceable Battery Life:- Approximately 6 years.
Units:- Selectable, volume, Delta T, Hot and Cold temperature, Kwh Total, Instant energy.
Output:- Pulse per Kwh, Pulse per m^3.
Programming:- No programming required- set and forget.

See page 24 for our energy case studies!

Complementary products

Add enhanced application knowledge and maximise in-service life

Pulse 101 Data Logger

- Interfaces to pulse output flow meters and contact closures
- Up to 100Hz input
- Free software (see below)
- Real time operation
- Miniature size

Thermocouple Recorder TC4000

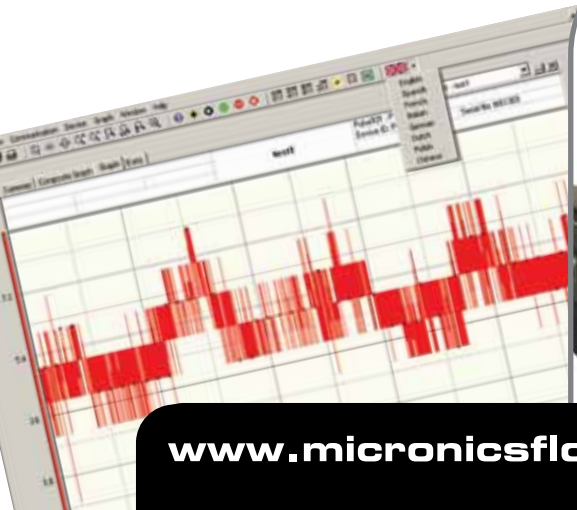
- Accepts a variety of Thermocouple types
- Internal cold junction reference.
- Real time operation
- Miniature size
- Free software (see below)

Process 101 Current Recorder

- Suitable for 4-20mA recording
- -20 to +100mA range
- Programmable engineering units
- Real time operation
- Free software (see below)

Thickness Gauge 8812

- Allows accurate wall thickness entry for best results with clamp-on flow meters
- Quick and easy setup and calibration



Sensor Covers

- Durable Nylon/PVC
- Draw string and Velcro fixing method for ease of mounting

FIXED

UF3000/UF4000

- For "clean" liquid monitoring
- To suit pipes DN 13mm-5000mm
- Non invasive sensing
- Simple and easy setup

The UF3000/UF4000 stands for continuity and long term reliability.This clamp-on flowmeter for liquids with its robust industrial construction provides a quick, reliable and easy means of measuring flow accurately - whatever the industry. Adding the optional energy calculator turns the UF3000/UF4000 into a heat meter.

Ultraflo 3000/4000

Enclosure:- Wall mountable. ABS housing with clear front panel and IP65 protection. Separate signal and power cable entry glands.
User Controls:- Large 240 x 64 graphics LCD allows easy to read multi-line menus. Multi-function 15-key keypad permits intuitive option selections.
Accuracy:- ±0.5% to ±3% depending on pipe size for flow rate >0.2m/s.
Repeatability:- ±0.5% of measured value or ±0.02m/s whichever is greater.
Outputs:- 1. Opto-isolated 4-20mA current output, max current 26mA into 620ohm max load.
2. Pulse output – Programmable Pulse Width from 2ms – 500ms, or frequency pulse.
3. Two programmable user alarms for high/low threshold triggering.
Power Input:- 86V – 264V AC, 50/60Hz (standard), 24V AC or DC (optional).
Transducers:- A-ST for pipe range 13mm – 115mm, pipe temperature -20°C to +135°C.
B-ST for pipe range 50mm – 2000mm, pipe temperature -20°C to +135°C.
D-Type for pipe range 1500mm – 5000mm pipe. Contact Micronics.
Optional Hi-Temp: -20°C to +200°C.
Environmental:- Operating temperature range -20°C to +50°C.
Storage temperature range -25°C to +75°C, Humidity 90% RH at 50°C max.

Industries:

- ☑ Chemicals
- ☑ Petrochemicals
- ☑ Power plants
- ☑ Water
- ☑ Oil & Gas
- ☑ Semi-conductor
- ☑ Food & Beverages
- ☑ Pharmaceuticals

- User friendly Quickstart operating mode
- Bi-directional accurate measurement over wide fluid velocity range, 0.1m/s to 20m/s
- Automatic compensation for velocity profile effects of water
- Secure operation – menus password protected
- 10 user selectable languages including English, German, French, Spanish and Russian!

Highlights:

- ☑ Minimised uncertainty
- ☑ Optimised reliability
- ☑ Minimal maintenance
- ☑ Efficient regreasing
- ☑ Easy sensor mounting
- ☑ All in one system

FIXED
U1000

- Metered liquid flow rate and volume
- Easy to install
- Clamp-on sensor Lower installed cost than in-line meters

New!

The new alternative to cutting pipes and mechanical meters from Micronics, for simple, low cost flow measurement from outside the pipe!

Ultraflo 1000

The U1000 is an ultrasonic permanent/fixed clamp-on flow metering solution for measuringpreset flow rate – l/m with a volume pulse output in litres and with a 4-20mA flow rate signal, which can be used as a stand alone meter or as an integral part of an aM&T or BEM's system.

Simple to install — clamp-on to the pipe, connect power and enter the pipe diameter, no specialist skills or tools required! A cost effective alternative to traditional in-line meter installation, plus dry servicing, providing minimum downtime and maximum availability!

Compact, rugged and reliable, the U1000 has been designed to provide sustained performance in industrial environments.

Industries:

- Building Services
- Energy Management
- Water Treatment
- Chemical
- Pharmaceutical
- Petrochemical
- Food

Recommended for:

- Hot water < 85°C
- Chilled water
- Potable water
- Demineralised water

U1000 Specification

Accuracy:+/-1-3% of flow reading for >0.3m/s
Flow Velocity Range:0.1 to 10m/s, bidirectional
Pipe Range:50-150mm Nominal Bore
Water Temp: Range:0°C to 85°C
Flow Rate Output: Opto Isolated 4-20mA
Volume Output: Pulse
Outputs preset to default condition based on Pipe Nominal Bore
External Power supply:12V-24V +/- 10% AC/DC at 7 watts
Electronics enclosure:IP54
Input/Output Cable:5m x 6 core for power in and data out

Application/use:

- Hot water metering and flow measurement
- Flow measurement for Heat Metering
- Chilled water metering and flow measurement
- Flow measurement for chilled water energy metering
- Potable water metering and flow measurement
- Process water metering and flow measurement
- Ultrapure water measurement

FIXED

U6000

- For "clean" liquid monitoring
- To suit pipes DN 15mm 6000mm
- Non invasive sensing
- EEx, FM and CSA approvals
- Setup wizard

The U6000 stands for continuity and long term reliability. Flow measurement can be done anywhere and start-up is immediate.

This clamp-on flowmeter for liquids with its robust industrial construction and regreasing concept provides a revolutionary solution for easy handling.

The U6000 is manufactured according to the European Directive 94/9 EC (ATEX 100a).

These flowmeters are approved for installation and use in hazardous classified locations of Zone 1 and 2 by the PTB and are in accordance with the European Standards of the EN 500xx and the EN 60079-7 standard.

Ultraflo 6000

Enclosure:- Die-cast aluminium with polyurethane coating. Stainless steel option.
Max. deviation (under reference conditions):- <± 1% of M.V. for DN 50 mm / 2", v > 0.5 m/s / 1.5 ft/s. <± 3% of M.V. for DN < 50 mm / 2", v > 0.5 m/s / 1.5 ft/s.
Measuring range:- 0…20 m/s / 0…66 ft/s.
Process Temp:- -40…120°C / -40…284°F. High temp option -50…200°C / -58…392°F.
Communication:- Current, pulse & status output. HART® communication, control input.
IP rating:- IP66/IP67
Mounting area:- 10 diameters inlet, 5 diameters outlet
Repeatability:- <± 0.2%
Protection ATEX:- EEx - zone 1/2 compliant, FM - Class I DIV 1/2, CSA - Class I DIV 1/2. Intrinsically safe Ex-I.
Pipe size:- (DN15…DN6000 / ½"…160") depending on flow sensor.
Power supply:- Standard 100…230 VAC (-15/+10%), 50/60 Hz/ Option: 24 VAC/DC
Human machine interface:- Infra red touchscreen setup.
Languages:- English, French, German
Solid content:- less than 5%.
Gas content:- less than 2%.

- Flexible ultrasonic flowmeter solution
- Robust industrial clamp-on construction
- Flow direction (forward or reverse)
- Totalisation of volume flow
- Reliability of flow measurement, Quality of acoustic signal
- CE approved
- Continuous measurement of actual volume flow rate, flow velocity, velocity of sound, damping of acoustic signal, signal to noise ratio
- Immediate start-up
- Reliable measurement
- All in one concept
- EEx - zone 1/2

Industries:

- ☑ Chemicals
- ☑ Petrochemicals
- ☑ Power plants
- ☑ Water
- ☑ Oil & Gas
- ☑ Semi-conductor
- ☑ Food & Beverages
- ☑ Pharmaceuticals

Highlights:

- ☑ Minimised uncertainty
- ☑ Optimised reliability
- ☑ Minimal maintenance
- ☑ Efficient regreasing
- ☑ Easy sensor mounting
- ☑ Installation wizard
- ☑ All in one system

HEAT METER

CalecST

- Calculates energy use
- Temp. sensors are clamp-on or inserted
- Used in conjunction with a flow meter

Clamp-on Ultrasonic technology can be successfully implemented as a cost effective solution to improve energy measurement and management.

Complementary Products

- Fixed flow meters: U3000

CalecST Heat Meter

- Allows accurate energy calculations - used in conjunction with a flow meter
- Quick and easy setup

Sensor probes:- 4 wire PT100 clamp-on 150mm/ 2 wire PT500 insertion.
Power:- Mains 240VAC/24VDC/Battery (6 year life).
Options:- MBUS central hub with GSM/Ethernet for up to 240 CalecSTs .
Output options:- Pulse / Pulse with Mbus / 4-20mA / LON
Units:- Selectable, volume, Delta T, Hot and Cold temperature, Kwh Total, Instant energy.
Programming:- No programming required- set and forget.

Go to page 3 to see how you studies! Energy - AND MONEY!

www.micronicsflowmeters.com

CASE STUDIES

Environmental Treatment Concepts

Environmental Treatment Concepts use Micronics Clamp-On Flow & Heat Measurement in Sustainable Water Treatment projects.

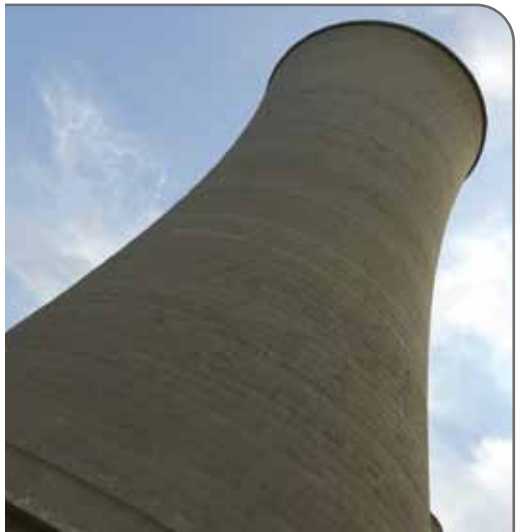
Demonstrating the benefits including improvements in the potential performance and energy savings from the retrofit installation of Sustainable Water Treatment to existing building services is a major factor in the take-up and case for investment. And being able to demonstrate what's flowing where, not flowing or even flowing backwards can go a long way to establishing confidence with potential customers that your company knows what its doing!

Surveying existing large-scale heating and HWS installations to establish a basis for installing improvements can be a daunting task and Environmental Treatment Concepts (ETC) www.electronicdescaler.com have found that the PF330 portable clamp-on flow and heat-meter from Micronics www.micronicsflowmeters.com is an ideal tool for the job.

Established in 1989 ETC has helped many commercial and industrial clients save thousands of pounds with their Effective Physical Water Treatment. Water that is naturally hard, as in 70% of the UK contains dissolved calcium and other minerals and their effect on pipe work and water systems can be disastrous including reducing heat exchanger energy efficiency by up-to 40% due to lime scale build-up. The Micronics products are used to demonstrate how bad the performance is before installation and the improvements in efficiency following installation with LTHW pipe sizes ranging from circa 2 to 18 inches. The ETC products prevent new and reduce existing lime scale, water flow rate is a key factor in the process and the PF330 provides the essential information for assessment and timeframes for improvement.

Having considered various suppliers ETC selected the Micronics – PF330 - Time of Flight - portable flow instrument plus heat-meter data-logger. Portable Clamp-On Ultrasonic flow measurement has clear advantages for survey work and Micronics were selected as the supplier due to a combination of their long-term experience with non-invasive, Clamp-On technology, product performance and pre-order assistance.

ETC Technical Services Manager - Simon Elliot says "The PF330 has proved to be a great tool to undertake plant surveys including identification of circulation shortfalls, even pumps going backwards. It provides a real insight into what's going on, like having X-ray vision. And it's also a valuable tool for demonstrating how well our installations work to improve performance and reduce energy consumption. The Micronics website and pre-order support was good and the products are simple to use. We've got a lot of Public sector – MOD and Hospital installations with very old pipe work where we've been pleased with the product performance and the ongoing service support has been there when we've needed it."



* The U2000 has since been updated to the U3000, see page 12/13 for details.

POWER INDUSTRY

PORTABLES
PF D550

- For "dirty" liquid monitoring
- To suit pipes DN 13mm-4500mm
- On board data logger and software
- Non invasive sensing
- Portable and Easy to use

- Clamp-on Ultrasonic Transducer
- Handheld Meter with large backlit LCD Display and Totalizer
- Internal Battery and/or AC Powered
- Built-in 5-Key Calibrator
- 300,000 point Data Logger
- USB Output and Windows software
- 4-20mA Output
- Rugged, watertight Carry Case

PF D550 Portable Doppler Flow Meter

Suitable for most contaminated fluid flows

- Single clamp-on transducer
- Fast, simple operation
- Rugged, waterproof
- On board data logger
- Free analysis software

Pipe Range:- 13mm to 4500mm.
Transducer Temperature Range:- -40°C to 120°C.
Power:- 110 - 240VAC +/ 10%.
Internal Rechargeable Battery:- 18 hours from full charge.
Programming:- via 5 key input controller.
Display:- flow rate, total.
Data Logger:- 300,000 point capacity time and date stamped.
Sensitivity:- fully adjustable.
Damping:- fully adjustable.
Outputs:- Opto isolated 0/4 –20mA; USB

PORTABLES
PF LV550

- For part filled pipe and open channel monitoring
- Built in display
- Long term data-logging capability
- Portable and Easy to use
- Streamlined sensor for invasive measurement

- Ultrasonic - Measures Level and Velocity
- No Flume or Weir required
- Powered by standard Alkaline D-cell batteries
- 130,000 point Data Logger
- Powerful Windows software
- RS232 Output
- LCD bar graph display

PF LV550 Portable Level-Velocity Logger

Suitable for any open channel or partially full pipe.

- Compact, rugged, water tight, dustproof
- Up to 4 years logging from Alkaline "D" cells
- Free onboard Windows compatible analysis software
- Large capacity memory store
- Fast download via RS232 port

Electronics Housing:- 208x166x86mm,polycarbonate, 4.5kg.
Operating Temp. Range:- -20°C to +60°C
Set-Up:- Via Windows compatible on-board software.
Display:- LCD Bar Graph selectable Displays: Memory, battery, temp, velocity, level.
Logger Interval:- 10secs (15 days) to 20mins (4 years).
Data Capacity:- 130,000 Data points.
Output:- RS232 @ 28,800 baud.
Power:- 4 Alkaline "D" cells.
Velocity Range:- 0.03m/sec to 3m/sec
Level Range:- Minimum Head 25.4mm, Maximum Head 4.5metres.
Sensor Operating Temp Range:- -15°C to +65°C (5°F to +150°F).

CASE STUDIES

Lodge Conttrell

Lodge Cottrell use Micronics PF330 Portable Clamp - on Flow Meter to substantially reduce commissioning time and fixed installation costs on large scale pollution control plant for coal fired boilers.

Lodge Cottrell is a world-leading supplier of large-scale industrial air pollution control equipment. On a project carried out during 2010 they had a requirement to process the ash extracted from their boiler flue gas treatment system by mixing this with water to form slurry suitable for disposal.

The ash is extracted from the flue gas using an Electrostatic Precipitator with the ash collecting in hoppers, which have varying fill rates determined by the extraction process. These hoppers then feed through to mixers where a specific water flow rate is required to achieve the target slurry consistency from the plant. The plant has 32 water lines with pipe sizes ranging from 18 to 1 inch diameter pipe and the Micronics Portaflo meters were used to accurately measure the water flow rate for the set-up of each mixer section.

The alternative to using the portable meter would have been 32 fixed metering points and as a consequence the use of the portable, clamp-on solution generated substantial benefits in terms of reduced commissioning time - labour and fixed metering point costs, plus the added advantage that the PF330 can be utilised again on other sites with similar requirements.

Having considered various suppliers Lodge Cottrell selected the Micronics - Portaflo PF330 - Time of Flight - portable flow instrument. Portable clamp-on Ultrasonic flow measurement has clear advantages for commissioning/set-up work and Micronics were selected as the supplier due to a combination of their long-term experience with non-invasive, clamp-on technology, product performance and best value.

Project Manager Nigel Dolphin says "The Portaflo PF330 has proved to be a valuable tool for commissioning of the plant water flow lines with considerable time and cost benefits over alternative fixed in-line metering points. The PF330 was simple to set-up/use and the flow measurement performance was good. The product has worked well and the customer service and technical support from Micronics has also been good."

The potential for re-use by Lodge Cottrell on other plant installations with similar requirements is significant and the project has demonstrated the clear benefits available from using portable, clamp-on, ultrasonic flow metering for temporary flow measurement requirements such as commissioning and set-up of water flow lines.

*Now superseded by PFD550, see page 18 for details.

WATER INDUSTRY

FIXED

UF D5000

- For "dirty" liquid monitoring
- To suit pipes DN 13mm-4500mm
- Non invasive sensing
- Easy to use

- Non-Contacting Ultrasonic Sensor
- Large, Backlit LCD Display
- 12-Digit Totalizer
- Reverse Flow Measurement
- Isolated 4-20mA (1000 ohm)
- 2 Programmable Control Relays
- Automatic Sensitivity Adjustment
- Built-in 5-Key Calibrator
- Optional 2 million point Data Logger with USB output to Flash memory

UF D5000 Doppler Flow Meter

Suitable for most contaminated fluid flows

- Watertight enclosure
- RFI rejection filters
- Signal strength indicator
- New bi directional flow monitoring

Pipe Range:- >13mm up to 4.5m.
Power Input:- 100 –240VAC, 50/60Hz, Option 9-32VDC 5 watts max.
Flow Rate Range:- 0.03m/s to 12m/s.
Accuracy:- +/-2% of full scale. Requires solids or bubbles of minimum size 100 microns, minimum concentration 75ppm.
Repeatability:- +/- 0.1%.
Linearity:- +/-0.5% of full scale.
Display:- Enhanced multi function white backlit matrix display, relay states, operating mode, calibration menu.

Output:- Isolated 0/4 –20mA(1000ohm load max.) 2-5amp rated SPDT relays, programmable flow alarms and/or proportional pulse. Adjustable sensitivity and damping.
Electronics Operating Temp:- -23°C to + 60°C.
Sensor Operating Temp:- -40°C to 150°C.
Options:- Intrinsic safety barriers, high temp to 150°C, ISE insertion option. Sensor designed to withstand accidental submersion. Enclosure heater controlled to maintain temp up to -40°C. Additional control relays.
Data logger:- 2 million points download via USB with Windows software.

www.micronicsflowmeters.com

FIXED
UF AV5000

- For part filled pipe and open channel monitoring
- 2 million point logger option and software
- Streamlined sensor for invasive measurement
- Easy to use

- For Open channels and Pipes No Flume or Weir Required
- Ultrasonic - Measures Velocity + Level to Calculate Flow
- Measures Forward and Reverse Flow
- 3 Isolated 4-20mA Outputs (Flow, Level and Velocity)
- Totalizer and 2 Control Relays
- Simple 5-key Calibration Password Protected
- Optional Intrinsically Safe Sensor
- Optional built-in 2-million point Data Logger and Software with USB output to Flash Drives

UF AV5000 Area-Velocity Flow Meter

Suitable for any open channel or partially full pipe.

- Monitor flows through partially full pipes or open channels
- Eliminates the need for flumes or weirs
- Automatic temperature compensation
- Barriers for I S operation
- 2 million point data logger optional
- Logger software included. Runs on Windows 95, 98, 2000, XP or NT

Measure and Log - Talk to us about the ideal package for you.

Enclosure:- Watertight and dustproof (IP66).
Power Input:- 50/60HZ.,5.28 watts, 100-240VAC or 9-32VDC optional.
Outputs:- 3x Isolated 4-20mA into 1000 ohm load. Programmable for Flow, Level or Velocity.
Relays:- 2 x form 'C' dry contacts rated 5 amp SPDT Programmable for Flow
Proportional pulse (sampler/totaliser) flow and/or level alarm.
Velocity Range:- 0.03 to 6.2m/sec
Level Range:- Minimum Head 25mm to Maximum Head 4.5m.
Accuracy:-
Level:- 0.25% of Range,
Velocity: +/-2% of Reading
Linearity and Repeatability:- +/- 0.1%.

FIXED
UF OC5000

- For open channel monitoring
- Versatile choice of channel types
- Easy to use

- Non-Contacting Ultrasonic Sensor
- Accurate and Verifiable
- Built-in 2-million point Data Logger and Windows Software
- USB Outputs to Flash Memory Sticks
- Isolated 4-20mA/0-5V Output
- 2 Programmable Control Relays
- Simple 5-key Calibration with Language Selection

Use with Flumes, Weirs, V notches

UF OC5000 Open Channel Flow Monitor

Suitable for most Flume or Weir

- Simple 5-Key calibration
- Password protected
- USB output to flash drive
- 2 million point logger
- Windows software
- On Screen flow reports

Enclosure:- Polycarbonate (IP66). Shatterproof clear Front Panel.
Power:- 100-240VAC 50/60HZ & 4 watts max.
Option:- 9-32VDC.
Outputs:- 4-20mA isolated into 1000ohm load. 2x control Relays Form "C" dry contacts rated 5amps SPDT. Programmable level alarm,pump control, pump alternation failsafe/echo-loss, air temperature alarm.
Sensor Specification:- Maximum range: 4.5m.
Dead Band:- Programmable. Minimum 200mm.
Beam Angle:- 8°.
Operating Frequency:- 92KHz.
Operating Temperature -40°C to 65°C with automatic temperature compensation.

MANCHESTER UNIVERSITY CASE STUDY

Micronics Clamp-On Ultrasonic water meters provide flow measurement for Heat Metering at University of Manchester

The University of Manchester's Energy Management and Building Services team have installed 15 Micronics Heat Meters,utilising Micronics UF2000 Clamp-on, Ultrasonic flow meters as part of their ongoing energy management programme.

The University's heating requirement including LTHW and MTHW is supplied from shared Energy Centres and distributed via a steel pipe network, ranging in size from 200 to 300mm. To comply with current legislation and implement the University's best practice energy management programme, the campus is monitored and managed by Energy Cost Centres with Display Energy Certificates required for all areas >1000 M^2 and the University has to account for 90% of the energy flow from the Energy Centres.

Implementing the installation of Heat Meters in an existing distribution network of 200 to 300 mm pipe-work would be a major task using in-line meters, which led Chris Cunningham, Assistant Mechanical and Energy Engineer and the team to specify Clamp-on Ultrasonic Flow Measurement. Chris says "After considering the various options Clamp-on Ultrasonic Flow Measurement was clearly the most cost-effective and least disruptive solution for measuring flow in our distribution network. In-line meters would have been more expensive and very disruptive requiring system drain-down and cutting pipe work".

The meters provide ½ hour consumption data, which is supplied for analysis via the University's data concentrators and campus Ethernet network, providing energy consumption data for 24hr Laboratories, Conference and Teaching blocks.

Micronics were selected as the supplier due to the University's previous experience using the Micronics Portaflow, Portable Ultrasonic, Clamp-on Flow Meter. A combination of Micronics profile in the market, long-term experience with Ultrasonic Clamp-on technology plus competitive pricing and product performance i.e. best value!

Chris has been pleased with the performance of the Micronics products and says the pre and post order service support has also been good, however, he feels the requirement for annual calibration and the associated costs is an area, which requires further consideration. The project has been a success and there are future plans to use the same technology on the University's chilled water circuits.

The project has demonstrated how Clamp-on - Ultrasonic technology can be successfully implemented as a cost-effective, minimal disruption solution to provide heat energy measurement and the potential for replication on similar campus sites is significant.

BUILDING SERVICES

PRESS STUDIES

CIBSE ACCREDITATIONS

CIBSE recognise Micronics as a CPD Course Provider

Micronics the leading UK manufacturer of clamp-on,ultrasonic flow metering products for portable and fixed applications has been assessed and recognised by the Chartered Institute of Building Services (CIBSE) as a CPD (Continuous Professional Development) Course Provider.

The potential for greater use of clamp-on, ultrasonic flow measurement within the Building Services sector for new and refurbishment projects is significant with both cost and operational benefits. Micronics is working to increase greater awareness amongst Building Services professionals and their CPD course - Clamp-on Fixed, Ultrasonic Flow Measurement for Building Services & Energy Management has been positively assessed by CIBSE leading to recognition for Micronics as a provider of CPD courses recognized by the institute.

Course attendance will be accepted by CIBSE as a valid CPD contribution for engineers as part of their ongoing development. If you would like further Clamp-on, ultrasonic flow metering, an on-site information on demonstration of the technology for your specific application or would like to arrange a CPD presentation for your organisation please visit www.micronicsflowmeters.com .

CIBSE CPD

BUILDING SERVICES

INLINE ENERGY METERS CF-ECHO II

- No moving parts- Ultrasonic technology
- To suit pipes DN15mm-50mm
- Mains or battery

Ultrasonic Compact Heat Meter

- High metrology
- Advanced functions
- Pre-equipped for communication
- Ease of installation
- Easy reading
- Ultrasonic technology - no moving parts

CF ECHO II

Applications
Heating and Combined, return and supply positioning, horizontal or vertical.

Benefits
- Accurate measurement of high and low flows.
- Easy reading.
- Pre-equipped for communication. Standards Compliance.
- Class 2.0 acc. EN 1434.
- Env. Class C acc. EN 1434.
- OIML R75 Class 4.
- PTB Class C.
- SP Test ≤ -2%.
- PED compliant.

Integral-V MaXX Compact Heat Meter

- Flow range - 6 l/h up to 3.75m³/h
- Pipe range - DN15 up to DN20
- Optional Output Connections for M-bus and pulse
- Class C Flowmeter acc. EN 1434-1

Pipe Connections - G ¾A or G1A
Pipe Sizes - DN15 and DN20
Nominal Flow Range Qp - 0.6m³/h to 2.5m³/h dependant on size
Maximum Flow Range - 1.5m³/h to 3.75m³/h dependant on size
Minimum Flow Range - 6l/h to 25l/h dependant on size
Nominal Pressure - PN16
Temperature Range - 20°C....90°C
Outputs - Optional Output Connections with pulse or M-bus output and option to connect up to 4 external water meters
Power Supply - 3.6V Lithium Battery (10 Years Typical)
Temperature Sensors - PT100 2 wire with 1.2m coiled cable

INLINE WATER METERS

- Pipe Sizes 15-200mm
- Hot + Cold Water

Hot & Cold Water Meters

- Flow range - 30 l/h up to 3000m³/h
- Pipe range - DN15 up to DN200
- For Cold (30°C) or Hot (90°C) water
- Screwed or Flanged pipe connections dependant on size
- Hermetically Sealed Counter
- For horizontal installation
- Pulse output for connection to pulse counter, heat calculator or BMS System

Pipe Sizes - DN15 and DN200
Nominal Flow Range Qn - 1.5m³/h to 1500m³/h dependant on size
Maximum Flow Range - 3m³/h to 3000m³/h dependant on size
Minimum Flow Range - 30l/h to 45m³/h dependant on size
Nominal Pressure - PN16
Temperature Range - 30°C - Cold, 90°C - hot
Body - Epoxy Powder Coated
Dial - Large, easy to read, hermetically sealed
Approvals - WRAS approved product

US BR473 Ultrasonic Flowmeter

- Flow range - 250 l/h up to 120m³/h
- Pipe range - DN65 up to DN100
- Selectable pulse values
- Horizontal or vertical mounting
- Use with heat calculator or stand-alone with Pulsbox power supply
- MID 2004/22/Ec module B + D
- Class 2.0 acc. EN1434

Pipe Connections - Flagged connections
Pipe Sizes - DN65 and DN100
Nominal Flow Range Qp - 25m³/h to 60m³/h dependant on size
Maximum Flow Range - 50m³/h to 120m³/h dependant on size
Minimum Flow Range - 250l/h to 600l/h dependant on size
Nominal Pressure - PN25
Temperature Range - 5°C....150°C
Outputs - Open collector pulse output, max. Voltage 30 Vdc, polarity dependant
Power Supply - 3.0.....5.5 Vdc powred by heat calculator or Pulsbox

RICOH ARENA CASE STUDY

Micronics Clamp-On Ultrasonic water meters provide flow measurement for pitch heating, water management and billing at the Ricoh Arena and water costs are reduced by 50%

Arena Coventry Limited, a total facilities management company, which manages all the facilities at the Ricoh Arena in Coventry, has reduced water consumption and achieved significant cost savings. The company's original investment in Micronics meters was a Heat Meter installed in 2008 to establish and monitor the energy costs associated with underground heating of the pitch. This was a success and following a later meeting with Seven Trent, triggered by a reduction in water consumption, the valuable information gained and clarification that the water used for the pitch heating does not go to sewage led to a reduction in water charges.

Energy management to reduce consumption and costs are a key function of Alan Pickering's role as the Ricoh Arena's Deputy Facilities and Energy Manager. He said "water consumption is a big issue on the site, which led us to invest in the installation of three Micronics Ultraflo 2000, Clamp-On Flow-Meters in 2009, which we use with an on-site Monitoring and Targeting system to manage the significant water consumption on the site."

The three meters were supplied and installed by Micronics, and provide individual half-hour consumption data for the north concourse, arena and southern concourse areas, Within three weeks of installation, the investment identified intermittent continuous flushing periods of some WCs in the southern concourse area, which when remedied reduced the site water consumption by 50% providing a payback of one month!

In addition to the above, Micronics meters have also been installed in the new Exhibition Hall to provide consumption data for automatic billing of water consumption for this area, which is shared between the on-site G Casino and the Ricoh Arena.

Having considered various measurement alternatives, Clamp-On Ultrasonic meters were selected due to the installation and maintenance/ service benefits associated with the non-invasive technology including low cost and minimum disruption installation with no system drain down required plus dry maintenance and service. And Micronics were selected as the supplier due to Alan's previous experience with them and a combination of their long-term experience with Clamp-On technology; competitive pricing and product performance i.e. best value!

Micronics' Clamp-On Flow Meters in conjuction with Alan's effective use of the on-site Monitoring and Targeting system has delivered a significant reduction in water consumption and reduced overall costs by 50%! He has been very pleased with the performance of the Micronics products and says the pre and post order service support has also been very good.

Alan believes there is significant potential for ongoing savings on-site and the project has demonstrated how Clamp-On - Ultrasonic technology can be successfully implemented as a cost-effective solution to improve heat energy measurement and water management on similar sites.

SERVICES AND HIRE

Not sure? Then Hire, we'll even offer to credit the cost of your first week's hire if you buy.

Micronics has a wealth of experience hiring many types of equipment, especially our own. Remember that when you hire Micronics equipment, you are dealing with the manufacturer with all the benefits that brings.

We have a large stock of hire equipment on the shelf and ready to go at any time.

Do you need an equipment expert on site? We can provide that too, ask for our Engineer on site service when you arrange your hire.

All units will arrive inspected by our service department and charged up for immediate use.

Maintenance Agreements - Micronics can offer maintenance plans to keep your equipment in top shape and within calibration, talk to us about your needs and we will tailor a plan for you.

Installation/ Commissioning We are able to offer the complete package, from your initial enquiry right through to after sales long term maintenance programs.

Our team of engineers can offer excellent advice from preliminary surveys right through to equipment selection and Installation and Commissioning.

By selecting Micronics you can be assured of receiving the quickest and best service on the market.

Training - At Micronics we understand that sharing knowledge leads to better value from test equipment.

Contact us for a program that best suits your enterprise.

Engineer on site - Our engineers have a lot of experience using our equipment, you choose the time and date and we'll be there.

Calibration - Keeping an instruments' calibration up to date makes sense, we can offer yearly maintenance programs to make this simple.

The whole solution - Micronics have been supplying solutions for their customers for many years, we can help you too. Tell us what you need and we will have a package that fits.

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