Micronics™

UX5000 Clamp-on Flow Meter

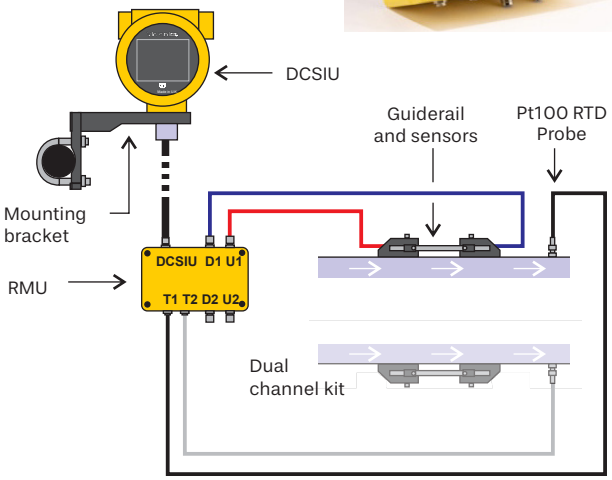
UX5000 Clamp-on Flow Meter for use in Hazardous Environments

FEATURES:

- Non-invasive, efficient, and easy installation, no process downtime
- Certified for use in hazardous areas (Zone 1 & Zone 2)
- Intrinsically Safe Measurement System
- Reliable measurement accuracy
- Separate Display (DCSIU) and Remote Measurement Unit (RMU) allows flexibility in installation
- Cost effective metering for harsh, heavy-duty applications
- Single and Dual Channel Options
- Remote System Setup and Monitoring

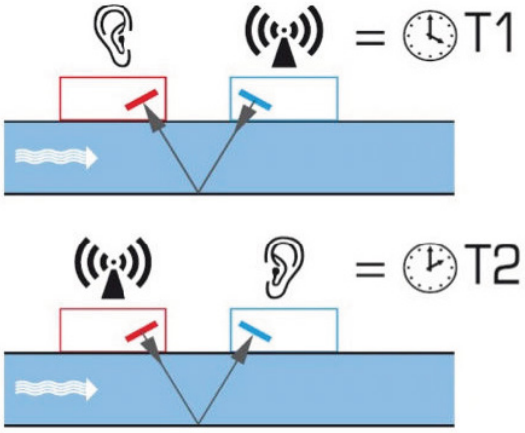
APPLICATIONS:

Applications for the UX5000 are vast. The UX5000 is ideal for harsh, heavy duty industrial applications for measuring flow of liquid in pipes – non-invasively. It is especially well-suited to the chemical, water and oil industries.



MEASUREMENT PRINCIPLES:

The UX5000 uses a cross correlation transit time algorithm to provide accurate flow measurements. An ultrasonic beam of a given frequency is generated and applied to the sensor crystals. This transmission goes first from the downstream sensor to the upstream sensor. The transmission is then made in the reverse direction, being sent from the upstream sensor to the downstream sensor. The speed at which the ultrasound is transmitted through the liquid is increased slightly by the velocity of the liquid through the pipe. The subsequent time difference T1-T2 is directly proportional to the liquid flow velocity.



T1 – T2 + K⋆dt = flow velocity

micronicsflowmeters.com
sales@micronicsltd.co.uk
(UK) +44 1628 243066

Micronics, British Rototherm Group,
Kenfig Industrial Estate, Margam,
Port Talbot, SA13 2PW

TECHNICAL SPECIFICATION:

UX5000	
Accuracy	Up to 0.5% with Process Calibration
Repeatability	±0.15%
Fluid Types	All acoustically conductive liquids with <3% particulates
Pipe Material	Many including Steel, Stainless Steel, Copper, Plastic
Pipe Diameter (OD)	2" to 78" (50-2000mm)
Weight (Shipping)	12kg
Dimensions (Shipping Box)	547mm x 397mm x 307mm

DCSIU	
Power	Recommended 21-24 VDC, 2W (Internally protected with 500mA 5x20 Glass Fast Acting Fuse) Max 26VDC
Equipment Group & Category	Ex II 2 (1) G Ex db [EX ia] IIB + H2 T4 Gb (-20°C ≤ Ta ≤ 60°C) MET (NRTL) HazLoc Class I Div I GP B.C.D T4 -20°C≤Ta≤60°C
Material	Powder Coated Aluminium (Marine Grade)
Weight	2.5kg
Size	206mm x 146mm x 135mm
Operational Temperature	-20 to 60°C
Entries	¾" NPT
Maximum Cable Distance from RMU	50m using extensions & up to 250m using junction boxes
Analogue Outputs (2)	Active 4-20mA
Relay Outputs (3)	Opto-isolated relay outputs volt free (24V AC or DC at up to 400mA)
RS485 Serial Communications	Modbus RTU
Screen	LCD graphical display
Screen Dimensions	69mm x 50mm
Environmental Protection	IP66 (EN 60529)
Humidity	90% RH at 50°C max
Maximum Altitude	2,000 metres

RMU	
Environmental Protection	IP66 (EN 60529)
Power	From DCSIU (12V 200mA)
Equipment Group & Category	Ex II 2 G Ex ia IIc T4 Gb (-20°C ≤ Ta ≤ 60°C) MET (NRTL) HazLoc Class I Div I GP B.C.D T4 -20°C≤Ta≤60°C
Material	Powder Coated Aluminium
Weight	0.6kg
Size	160mm x 100mm x 79mm
Operational Temperature	-20 to 60°C
Temperature Sensor Connections	M8 male waterproof connector
DCSIU Connection	M12 male waterproof connector
Sensor Connections	TNC waterproof connector
Cable Distance from Sensor	5m standard (10m optional)
Humidity	90% RH at 50°C max
Maximum Altitude	2,000 metres

Sensors	
Environmental Protection	IP66 (EN 60529)
Equipment Group & Category	Ex II 2 G Ex ia IIC T4 Gb (-20°C ≤ Ta ≤ 60°C) MET (NRTL) HazLoc Class I Div I GP B.C.D T4 -20°C≤Ta≤60°C
Material	PEEK
Weight	0.2 kg
Size	60mm x 35mm x 30mm
Operational Temperature	-20 to 120°C
Connection	TNC Waterproof Connector
Connection	Sensors must be connected through the RMU to conform with the certification.
Flammability Rating	UL94V-0
Humidity	90% RH at 50°C max
Maximum Altitude	2,000 metres

Mounting Fixtures	
DCSIU	Pipe mount on nominal 2" bore pipe or wall mount bracket
RMU	Pipe mount or wall mount bracket
Flow Sensors	Metal guiderail with separation ruler using ultrasonic acoustic gel on the sensors.

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