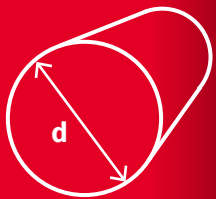




Specialists in  
Ultrasonic Flow  
Measurement



10–6500 mm



Power Generation

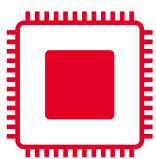


Aircraft and  
Aerospace



Measurement of  
Liquids and Gases

Portable  
and  
Fixed  
Installation



Semiconductor



Marine and  
Shipbuilding

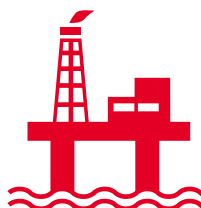


Chemical and  
Petrochemical

+250°C  
and higher



Pharmaceutical



Oil and Gas

±25 m/s  
Flow Velocity



Food and Drink

-50°C  
and lower



Water and  
Wastewater



Building Services

ISO 9001  
Certified  
Company



Manufacturing  
and Process



# Providing reliable flow measurements to satisfied customers since 1996

Katronic's excellent reputation has been built on offering accurate and intuitive clamp-on flowmeters supplemented by market-leading customer service and technical support.



# Our Mission Statement

To provide innovative products and services that staff can be proud of and customers can trust.

To foster relationships with customers, suppliers and colleagues that add benefit to all parties.

To offer levels of support and flexibility that exceed those of our competitors.

# Katronic

## Your Solution Starts With Our Product

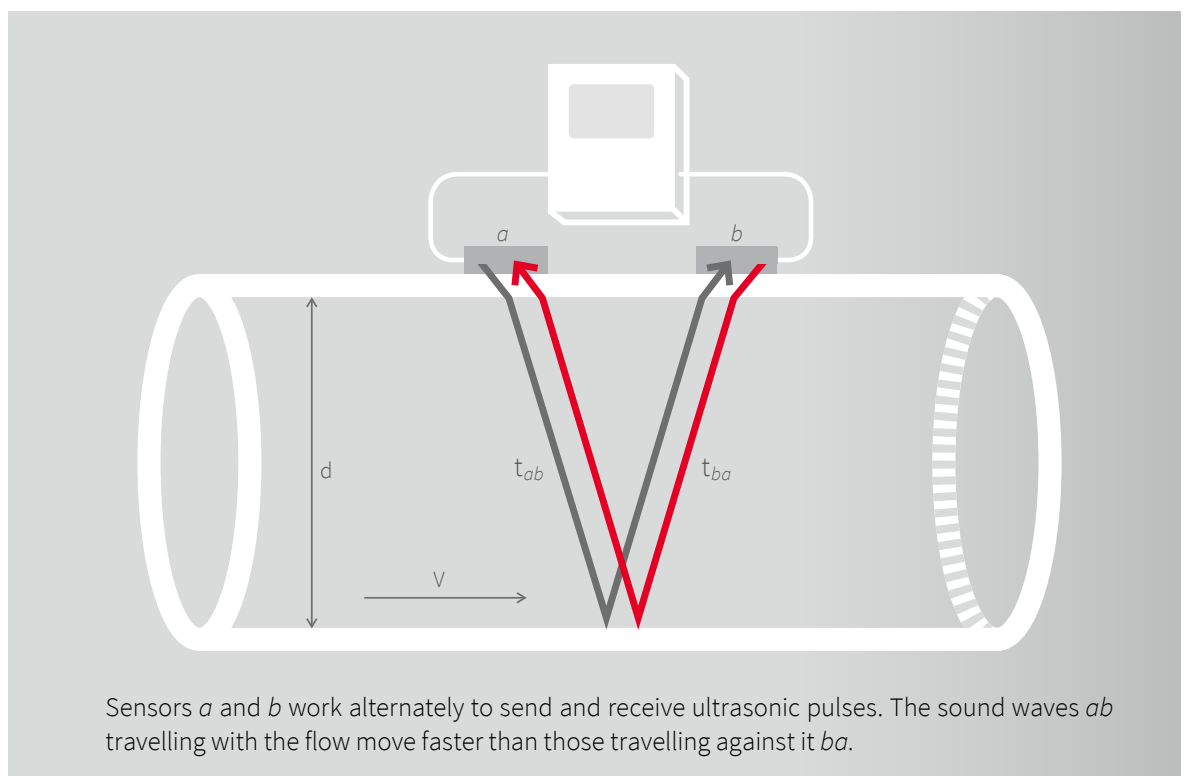
### THE TECHNOLOGY BEHIND THE MEASUREMENT

The KATflow non-invasive flowmeters work on the transit time principle. Ultrasonic pulses are sent and received from a pair of sensors and travel through the pipe wall and the medium. The technology can be applied to both liquids and gases using clamp-on transducers externally mounted on the surface of the pipe. The flowmeters can measure on pipes of all standard materials over a diameter range of 10 mm to 6 500 mm.

The key principle of the method is that sound waves travelling with the flow will move faster than those moving against. The subsequent difference in the transit time of these signals is measured precisely as it is proportional to the flow velocity of the medium and consequently the flow rate. The flowmeter then

compensates for elements that could influence measurements such as flow profile, pipe material and changes in fluid in order to provide reliable results.

Clamp-on flowmeters can be used on media as varied as purified water or toxic chemical effluent, natural gas or air and offer the user many advantages over in-line measurement technologies. There is no need to cut the pipe, no shutdown to the system, no risk of leakage and consequently they provide considerable cost savings especially on large pipes. The reliable KATflow instruments have seen success in a vast array of applications from measurements on submarines, to installations on systems destined for use in space.





# KATflow 200

## Hand-Held Clamp-On Ultrasonic Flowmeter



The user-friendly design of the hand-held KATflow 200 sets the standard for ease of installation. The quality of the Katronic flowmeters is encapsulated by the robust and durable transducers which can be used in a wide variety of different environments and applications.



### INNOVATIVE. INTUITIVE. INTELLIGENT.

The KATflow 200 is a fully portable instrument with a power which is belied by its small size. This lightweight flowmeter is incredibly easy to use and can be operated one-handed which makes it an ideal tool for use in confined spaces or when working

at height. The KATflow 200 offers measurement performance normally associated with more complex and expensive devices and is complemented by the exceptional quality and robustness of the Katronic transducers.

Portable

-30°C +250°C



## SPECIFICATION

- Pipe diameter range 10 mm to 6500 mm
- Temperature range for sensors  
-30 °C to +250 °C (-22 °F to +482 °F)
- Weight 650 g
- Robust IP 65 enclosure with added rubber shock protector
- Selectable three-line LCD display and full keypad
- Battery life up to 24 hours with standard NiMH AA batteries for simple replacement

## FEATURES

- Lightweight and tactile for easy one-handed use
- Stainless steel sensors, cable and connectors as standard
- Innovative installation wizard for quick and intuitive programming
- Full instrument diagnostics and scope function
- Large data logger and software for sampling and data transfer
- Optional pipe wall thickness gauge

## APPLICATIONS

- Pump testing and inspection
- In-line flowmeter performance verification
- Leakage and blockage detection
- Clean in process system (CIP) testing
- Monitoring of hydraulic systems
- Clean room applications



# KATflow 210

## Integrated Clamp-On Ultrasonic Flowmeter



The durable design of the KATflow 210 makes it ideal for use in outdoor conditions and in areas with a high humidity. It also accommodates a much larger battery than the other portable flowmeters allowing for months of measurements.

### ROUGH. ROBUST. REMOTE.



The KATflow 210 is a portable flowmeter designed for situations which require a reliable flow measurement regardless of the conditions in which it needs to be operated. With its advanced battery technology and durable waterproof housing the instrument is intended for long-term installation in remote areas where access to power is limited and exposure to the worst

of elements is likely. This device has been further enhanced by the inclusion of a specially manufactured IP 68 version of the K1N stainless steel transducers which increases shock protection and ensures this ruggedised package provides the perfect balance of reliability, robustness and autonomy.



Portable

-30°C +130°C



## SPECIFICATION

- Pipe diameter range 50 mm to 2500 mm
- Temperature range for sensors  
-30 °C to +130 °C (-22 °F to +266 °F)
- Rugged integrated IP 67 portable design
- Selectable three-line LCD display and full keypad
- Weight 6 kg
- Standard operation up to 100 days, longer in power saving modes

## FEATURES

- Three different measurement modes to maximise battery life
- IP 68 stainless steel sensors, cable and connectors as standard
- Process output options including current, open-collector, relay
- Large data logger and software for sampling and data transfer
- Integrated pipe wall thickness gauge available
- Optional wireless data transmission

## APPLICATIONS

- Long-term leakage surveys
- Metering in pits, wells and areas where flooding is likely
- In-line flowmeter inspection verification
- Metering of pipes in exposed locations
- Temporary replacement of conventional in-line flowmeters
- Monitoring of irrigation systems



# KATflow 230

## Flexible Clamp-On Ultrasonic Flowmeter



The multifunctional KATflow 230 is supplied with the robust N-type sensors as standard. The meter can be specified to include two clamp-on temperature sensors to create a portable heat measurement package.

### POWERFUL. PRACTICAL. PORTABLE.



The KATflow 230 is easily portable but incorporates an advanced specification for situations which require comprehensive measurement features coupled with easy operation. The flowmeter has two measurement channels, which allow it to

monitor two pipes simultaneously or to improve accuracy in non-ideal conditions. The KATflow 230 can also be supplied with a variety of options to meet the most diverse application requirements.

Portable

-30°C +250°C



## SPECIFICATION

- Pipe diameter range 10 mm to 6500 mm
- Temperature range for sensors  
-30 °C to +250 °C (-22 °F to +482 °F)
- Robust IP 65 aluminium enclosure
- Selectable three-line LCD display and full keypad
- Battery life up to 24 hours with easily replaceable battery cartridge
- Measurement of two flows simultaneously

## FEATURES

- Dual flow monitoring with sum, average, difference and maximum calculations
- PT100 inputs for heat quantity (thermal energy) measurement
- Process output options including current, open-collector, relay
- Large data logger and software for sampling and data transfer
- Stainless steel sensors, cable and connectors as standard
- Optional pipe wall thickness gauge

## APPLICATIONS

- Heating, Ventilation and Air Conditioning (HVAC) measurements
- Large pipe measurement with two sensor pairs in 'X' configuration
- Temporary replacement of conventional in-line flowmeters
- Building surveys on large facilities
- Efficiency monitoring of heat exchangers
- Clean in process system (CIP) testing





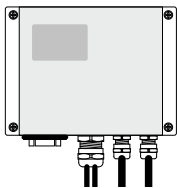
# KATflow 100

## Standard Clamp-On Ultrasonic Flow Transmitter



The KATflow 100 can be operated with either the L-type or P-type transducers to suit both application and budget. The new K1P sensors are the most cost-effective and can be used from 50 mm to 600 mm.

### SMALL. SIMPLE. STURDY.



The KATflow 100 is a compact clamp-on ultrasonic flow transmitter with a robust and practical design for permanent installation and flow measurement on single pipes. The instrument offers a cost-effective option owing to its simplified specification and

the availability of a range of transducer types. The varied functionality and simple operation of the KATflow 100 make it the perfect product for large projects and customer specific solutions.



Fixed  
Installation

-30°C +80°C



## SPECIFICATION

- Pipe diameter range 10 mm to 3000 mm
- Temperature range for sensors  
-30 °C to +80 °C (-22 °F to +176 °F)
- Weight 750 g
- Robust IP 66 aluminium enclosure
- Sturdy unit with LCD display and five-key keypad
- Wall or pipe mounted

## FEATURES

- Low cost of ownership
- Process outputs including RS 485,  
Modbus RTU and HART\* compatible output
- PT100 inputs for heat quantity (thermal energy)  
measurement
- Bi-directional measurement with  
totaliser function
- Innovative installation wizard for quick  
and intuitive programming
- Configuration can be changed to suit  
customer requirements

## APPLICATIONS

- Water and wastewater measurements
- Replacement of electromagnetic flowmeters
- Monitoring and controlling of HVAC systems
- Cost-effective solution for large scale projects
- Automated process control
- Shipping applications

\* HART® is a registered trademark of the  
HART Communication Foundation



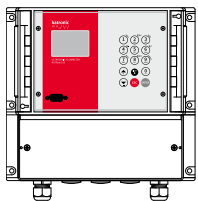
# KATflow 150

## Advanced Clamp-On Ultrasonic Flowmeter



The wall mounted KATflow 150 offers practical and simple operation with its attractive housing, lockable polycarbonate cover and stainless steel transducers. The metallic mounting rail ensures ease of sensor installation as well as absolute accuracy of sensor alignment.

### FAST. FLEXIBLE. FUNCTIONAL.

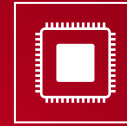


The KATflow 150 is the premier product for flexibility and performance, providing the user with a comprehensive specification and a list of configuration options. The practical modular design and the wide variety of different transducer types available

ensure this instrument is suitable for everything from simple water flow measurements to energy flow monitoring, automated process control and product recognition applications.

Fixed  
Installation

-30°C +250°C



## SPECIFICATION

- Pipe diameter range 10 mm to 6500 mm
- Temperature range for sensors  
-30 °C to +250 °C (-22 °F to +482 °F),  
higher temperatures available on request
- Lockable and sturdy IP 66 polycarbonate flowmeter enclosure
- Selectable three-line LCD display and full keypad
- Up to ten different input or output slots available
- Measurement of two flows simultaneously

## FEATURES

- Dual flow monitoring with sum, average, difference and maximum calculations
- Process output options including current, open-collector, relay
- Communication options RS 485, Modbus RTU, Profibus PA and HART\* compatible output
- Current inputs for temperature, pressure and density compensation
- Large data logger and software for sampling and data transfer
- Optional heat quantity (thermal energy) measurement functionality

## APPLICATIONS

- Heating, Ventilation and Air Conditioning (HVAC) measurements
- Large pipe measurement with two sensor pairs in 'X' configuration
- Product recognition and interface detection systems
- Measurements with Ex-certified transducers
- Effluent and wastewater measurements
- Automated process control

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HART Communication Foundation





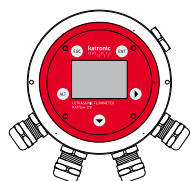
# KATflow 170

## Explosion-Proof Clamp-On Ultrasonic Flowmeter



The KATflow 170 is available as both an epoxy-coated aluminium version and in stainless steel and is matched with IP 68 transducers for optimum robustness. The instruments are programmed using a magnetic pen for ease of use and maximum security.

### RUGGED. RESISTANT. RELIABLE.



For applications where harsh environmental conditions demand a more rugged instrument, the KATflow 170 provides a corrosion-resistant option as part of a fully ex-certified package. The flowmeter is intended for permanent operation in Zone 1 and 2

hazardous areas and is an economical choice for a variety of metering applications. The KATflow 170 demonstrates that even the most complex technical requirements can be met with straightforward solutions.



Fixed  
Installation

-50°C +115°C



## SPECIFICATION

- Pipe diameter range 10 mm to 3000 mm
- Temperature range for sensors  
-50 °C to +115 °C (-58 °F to +239 °F),  
higher temperatures available on request
- Robust IP 66 unit with LCD display and  
glass-fronted keypad
- Epoxy-coated aluminium or stainless steel  
enclosure
- Magnetic pen for safe and easy programming
- Measurement of two flows simultaneously

## FEATURES

- Suitable for installation in hazardous areas
- Dual flow monitoring with sum, average,  
difference and maximum calculations
- IP 68 stainless steel sensors as standard
- Process output options including current,  
open-collector, relay
- Communication options RS 485, Modbus RTU,  
Profibus PA and HART\* compatible output
- Ex-certified PT100 probe for temperature  
compensation

## APPLICATIONS

- Produced water measurements
- Methanol and water injection systems
- Product recognition and interface  
detection systems
- Measurement of refined products
- Tanker unloading systems
- Oil blending skids

\* HART® is a registered trademark of the  
HART Communication Foundation



# KATflow 170

## Gas Clamp-on Ultrasonic Flowmeter



The new gas measurement instruments are available both as fixed and portable solutions for safe and hazardous area use and can measure on all commonly used pipe materials.

### MEASUREMENT FROM AMMONIA TO XENON

Katronic flowmeters are well established for liquid flow applications and can now be applied for the non-invasive measurement of gases. The new method not only provides measurements at high pressure gas flows but also down to atmospheric conditions even in steel pipes which was impossible until

recently. This unique innovation is achieved through advances in sensor technology, powerful sophisticated electronics, adaptive filtering techniques and innovative signal processing algorithms using Digital Signal Processors (DSP's).

### SPECIFICATION

- Pipe diameter range 25 mm to 1500 mm
- Temperature range for safe area sensors -20 °C to +135 °C (-4 °F to 275 °F), for Ex-sensors -40 °C to +80 °C (-40 °F to +176 °F)
- Robust IP 66 unit with OLED display and glass-fronted keypad
- Pressure range 1 bar (absolute) to unlimited maximum
- Flow velocities 0.1 m/s to 75 m/s

### APPLICATIONS

- Measurement on natural gas pipelines
- Natural gas storage installations
- Control of compressor stations
- Synthesised gas flow measurements
- Compressed air flow measurements

### FEATURES

- Shear and Lamb Wave IP 68 stainless steel sensors
- Process output options including current, open-collector, relay
- Communication option Modbus RTU
- Inputs for temperature, pressure and gas compressibility factor available
- Web-based data evaluation, instrument setup via wired, wireless or GSM connection

### MEDIA TYPES

Air, argon, carbon monoxide, ethane, ethylene, helium, hydrogen, natural gas, nitrogen, nitrous oxide, oxygen, process gas, propane, saturated steam, sour gas

# Communication Types

## Flowmeter Connectivity Explained

MEASUREMENT IS VALUABLE. DATA IS PRICELESS.

The KATflow range of products are designed to provide users not only with effective reliable flow measurement in a number of different scenarios but also with a variety of digital serial interfacing options

specific to various industries. The table below illustrates an overview of the communication protocols that Katronic can offer and the instruments on which they are available.

Protocol	Physical Layer	Devices	Industries
<b>Modbus RTU</b>	RS 485	KATflow 100 KATflow 150 KATflow 170 KATflow 210 KATflow 230	Aircraft and Aerospace Building Services Chemical and Petrochemical Food and Drink Manufacturing and Process Marine and Shipbuilding Oil and Gas Pharmaceutical Power Generation Semiconductor Water and Wastewater
<b>Modbus TCP/IP</b>	Ethernet	KATflow 100 KATflow 150 KATflow 210 KATflow 230	Building Services Manufacturing and Process
<b>LonWorks</b>	Twisted Pair (Free Topology)	KATflow 100 KATflow 150	Building Services
<b>BACnet</b>	Ethernet	KATflow 100 KATflow 150	Building Services
<b>M-Bus</b>	Two-wire	KATflow 100 KATflow 150	Building Services
<b>HART</b>	Two-wire 4...20 mA	KATflow 100 KATflow 150 KATflow 170	Process Automation
<b>Profibus PA</b>	Twisted Pair, IEC 61158-2	KATflow 150 KATflow 170	Process Automation
<b>Profibus DP</b>	Twisted Pair, RS 485	KATflow 100 KATflow 150	Factory Automation
<b>Profinet</b>	Ethernet	KATflow 100 KATflow 150	Factory Automation
<b>Fieldbus Foundation</b>	Twisted Pair, IEC 61158-2	KATflow 150 KATflow 170	Process Automation
<b>Ethernet</b>	Wired/Wireless Ethernet	KATflow 150	Building Services Factory Automation
<b>Wireless</b>	GSM/GPRS/3G	KATflow 150 KATflow 210	Oil and Gas Process Automation Water and Wastewater

# Transducer Types

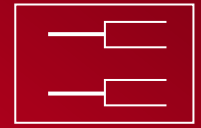
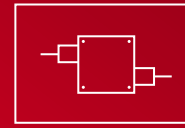
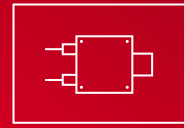
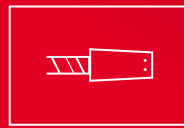
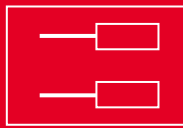
## Sensor Connection and Extension Explained




















Sensor Image	Sensor Type (Frequency)	Pipe Diameter Range	Temperature Range	Sensor Termination
	K4 (4 MHz)	10 ... 250 mm	Low temperature -30 ... +80 °C (-22 ... +176 °F)	Wires 
			Ex-rated -50 ... +115 °C (-58 ... +239 °F)	Wires 
			Normal temperature -30 ... +130 °C (-22 ... +266 °F)	SMB connectors 
				Amphenol connector 
				ODU connector 
			Extended temperature -30 ... +250 °C (-22 ... +482 °F)	SMB connectors 
				Amphenol connector 
				ODU connector 
	K1 (1 MHz)	50 ... 600 mm	Plastic wedge -20 ... +60 °C (-4 ... +140 °F)	Wires 
		50 ... 3000 (6500) mm	Low temperature -30 ... +80 °C (-22 ... +176 °F)	Wires 
			Ex-rated -50 ... +115 °C (-58 ... +239 °F)	Wires 
			Normal temperature -30 ... +130 °C (-22 ... +266 °F)	SMB connectors 
				Amphenol connector 
				ODU connector 
			Extended temperature -30 ... +250 °C (-22 ... +482 °F)	SMB connectors 
				Amphenol connector 
				ODU connector 
		40 ... 600 mm	Very High Temperature -200 ... +450 °C (+392 ... +842 °F)	Wires 
	K0 (0.5 MHz)	(100) 200 ... 6500 mm	Low temperature -30 ... +80 °C (-22 ... +176 °F)	Wires 



# Portable and Fixed Installation

# -200°C +450°C

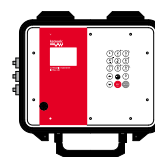


Sensor Cable Length	Flowmeter Type	Extension Type	Extension Cable	Extension Cable Length	Flowmeter Connection Type
10 m	Fixed	Junction box 	12 mm OD	Max. 50 m	Direct (terminal block)
5 m	Fixed	Junction box 	12 mm OD	Max. 50 m	Direct (terminal block)
2.5 m	Fixed	Junction box 	12 mm OD	Max. 50 m	Direct (terminal block)
2.5 m	Fixed	Amphenol connector 	8 mm OD	10 m, 20 m, 30 m	SMB connectors
2.5 m	Portable	ODU connector 	6 mm OD	5 m, 10 m, 20 m	ODU connector
2.5 m	Fixed	Junction box 	12 mm OD	Max. 50 m	Direct (terminal block)
2.5 m	Fixed	Amphenol connector 	8 mm OD	10 m, 20 m, 30 m	SMB connectors
2.5 m	Portable	ODU connector 	6 mm OD	5 m, 10 m, 20 m	ODU connector
10 m	Fixed	Junction box 	12 mm OD	Max. 100 m	Direct (terminal block)
10 m	Fixed	Junction box 	12 mm OD	Max. 100 m	Direct (terminal block)
5 m	Fixed	Junction box 	12 mm OD	Max. 100 m	Direct (terminal block)
4 m	Fixed	Junction box 	12 mm OD	Max. 100 m	Direct (terminal block)
4 m	Fixed	Amphenol connector 	8 mm OD	10 m, 20 m, 30 m	SMB connectors
4 m	Portable	ODU connector 	6 mm OD	5 m, 10 m, 20 m	ODU connector
4 m	Fixed	Junction box 	12 mm OD	Max. 100 m	Direct (terminal block)
4 m	Fixed	Amphenol connector 	8 mm OD	10 m, 20 m, 30 m	SMB connectors
4 m	Portable	ODU connector 	6 mm OD	5 m, 10 m, 20 m	ODU connector
10 m	Fixed	Junction box 	12 mm OD	Max. 50 m	Direct (terminal block)
10 m	Fixed	Junction box 	12 mm OD	Max. 200 m	Direct (terminal block)

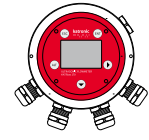
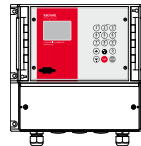
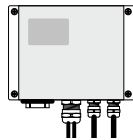
# Flowmeter Types

## Portable and Fixed Installation

### Flowmeters Explained



Unit	KATflow 200	KATflow 210	KATflow 230
<b>Model type</b>	Portable	Portable	Portable
<b>Pipe diameter range</b>	10 ... 6 500 mm	50 ... 2 500 mm	10 ... 6 500 mm
<b>Temperature range</b>	-30 ... +250 °C (-22 ... +482 °F)	-30 ... +133 °C (-22 ... +266 °F)	-30 ... +250 °C (-22 ... +482 °F)
<b>Measurement channels</b>	1	1	1 or 2 <sup>1)</sup>
<b>Flow velocity range</b>	0.01 ... 25 m/s	0.01 ... 25 m/s	0.01 ... 25 m/s
<b>Accuracy of volume flow</b>	±1 ... 3 % of measured value ±0.5 % process calibrated	±1 ... 3 % of measured value ±0.5 % process calibrated	±1 ... 3 % of measured value ±0.5 % process calibrated
<b>Accuracy range</b>	0.25 ... 25 m/s	0.25 ... 25 m/s	0.25 ... 25 m/s
<b>Weight</b>	650 g	6.0 kg	2.0 kg
<b>Battery life</b>	Up to 24 h	Up to 100 days with 3 cells	Up to 24 h
<b>Power supply</b>	4 x NiMH AA 2850 mAh 100 ... 240 V AC (mains socket) <sup>2)</sup>	1 to 3 LiFePo4 cells 12,8 Ah 100 ... 240 V AC (mains socket) <sup>2)</sup>	8 x NiMH AA 2850 mAh 100 ... 240 V AC (mains socket) <sup>2)</sup>
<b>Display</b>	LCD graphic display, 128 x 64 dots, backlit	LCD graphic display, 128 x 64 dots, backlit	LCD graphic display, 128 x 64 dots, backlit
<b>Process inputs</b>	No	0/4 ... 20 mA	PT100 temperature <sup>3)</sup> , 0/4 ... 20 mA
<b>Process outputs</b>	No	0/4 ... 20 mA, pulse (OC), digital relay	0/4 ... 20 mA, pulse (OC), digital relay
<b>Communication<sup>4)</sup></b>	RS 232, USB	USB	USB
<b>Internal data logger</b>	Yes	Yes	Yes
<b>Wall thickness gauge</b>	Yes	Yes	Yes
<b>Energy metering</b>	No	No	Yes <sup>5)</sup>
<b>Ex-approved version</b>	No	No	No



Unit	KATflow 100	KATflow 150	KATflow 170
<b>Model type</b>	Fixed installation	Fixed installation	Fixed installation
<b>Pipe diameter range</b>	10 ... 3 000 mm	10 ... 6 500 mm	10 ... 3 000 mm
<b>Temperature range</b>	-30 ... +80 °C (-22 ... +176 °F)	-30 ... +250 °C (-22 ... +482 °F)	-50 ... +115 °C (-58 ... +239 °F)
<b>Measurement channels</b>	1	1 or 2 <sup>1)</sup>	1 or 2 <sup>1)</sup>
<b>Flow velocity range</b>	0.01 ... 25 m/s	0.01 ... 25 m/s	0.01 ... 25 m/s
<b>Accuracy of volume flow</b>	±1 ... 3 % of measured value ±0.5 % process calibrated	±1 ... 3 % of measured value ±0.5 % process calibrated	±1 ... 3 % of measured value ±0.5 % process calibrated
<b>Accuracy range</b>	0.25 ... 25 m/s	0.25 ... 25 m/s	0.25 ... 25 m/s
<b>Weight</b>	750 g	2,3 kg	4,0 kg
<b>Battery life</b>	n/a	n/a	n/a
<b>Power supply</b>	100 ... 240 V AC or 9 ... 36 V DC	100 ... 240 V AC or 9 ... 36 V DC	100 ... 240 V AC or 9 ... 36 V DC
<b>Display</b>	LCD graphic display, 128 x 64 dots, backlit	LCD graphic display, 128 x 64 dots, backlit	LCD graphic display, 128 x 64 dots, backlit
<b>Process inputs</b>	PT100 temperature <sup>3)</sup> , 0/4 ... 20 mA	PT100 temperature <sup>3)</sup> , 0/4 ... 20 mA	PT100 temperature <sup>3)</sup> , 0/4 ... 20 mA
<b>Process outputs</b>	0/4 ... 20 mA, pulse (OC), digital relay, frequency, voltage, HART* compatible	0/4 ... 20 mA, pulse (OC), digital relay, frequency, voltage, HART* compatible	0/4 ... 20 mA, pulse (OC), digital relay, frequency, voltage, HART* compatible
<b>Communication<sup>4)</sup></b>	RS 232, Modbus RTU	RS 232, RS 485, Modbus RTU, Profibus PA	RS 232, Modbus RTU, Profibus PA
<b>Internal data logger</b>	Yes	Yes	Yes
<b>Wall thickness gauge</b>	n/a	n/a	n/a
<b>Energy metering</b>	Yes <sup>5)</sup>	Yes <sup>5)</sup>	Yes <sup>5)</sup>
<b>Ex-approved version</b>	No	Yes	Yes

1) For simultaneous measurement on two separate pipes or for measurement on one single pipe in a two-path sensor mounting configuration.

2) For charging of internal batteries and supply of flowmeter with power when connected to mains electricity socket.

3) + 5) For contactless measurement of thermal energy consumption, displayable units: W, kW, MW, J, kJ, MJ, BTU (on request).

4) Please see communication connectivity page for complete list of options.

\* HART® is a registered trademark of the *HART Communication Foundation*



# What Our Clients Say:

“I have been most impressed by both your equipment and your support service.”

Chris Barlow - S. I. SEALY

“Thank you for the wonderful support and service I received off of you and your company. It's a great bit of kit.”

Philip Guard - PCG CONSULTANCY SERVICES

“Superb Service!”

Peter Hartley -UK EXCHANGERS

“I was convinced by the intuitive usability, the competent service and above all the excellent measurement results.”

Olaf Koberstein - TenneT TSO GmbH

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