

SITRANS F US

Taking flowmetering to ultrasonic heights



sitrans f



SIEMENS



Siemens SITRANS F US
family of wetted ultrasonic
flowmeter.



Siemens SITRANS F US
family of clamp-on ultrasonic
flowmeter.

SITRANS F US Ultrasonic flowmeters – Delivering industry-leading performance

The Siemens family of ultrasonic flowmeters offers more. More customer-driven innovation. More application possibilities. More customized choices. More ease of use. More performance at a better price ratio.

For all liquid and gas measurement, and for the choice between wetted and clamp-on flowmeters, Siemens offers an ultrasonic solution.

Drawing on experience that dates back to the 1960's when Siemens Flow Instruments introduced the

first ultrasonic Transit-Time flowmeters, our engineers continue to improve performance, boost utilization and simplify flowmeter operation.

As a result, today's SITRANS F US ultrasonic flowmeters deliver high accuracy, simple operation and rugged reliability for a wide range of processes and conditions for both wetted and clamp-on applications. Whatever your application needs, Siemens has the ideal flowmeter. There is no need to search further.





Your search is over

Choose Siemens ultrasonic flowmeters

Clamp-on

FUS1010: General purpose, dedicated liquid meters. WideBeam Transit-Time or Doppler operation.

FUP1010: General purpose, portable liquid meters. Ideal for surveys and temporary liquid flow installations.

FUE1010: Energy, dedicated and portable. Highly accurate thermal energy sub-metering and efficiency monitoring.

FUH1010: Liquid hydrocarbon, dedicated meters for crude oil, refined petroleum, liquefied gas.

FUG1010: Natural & process gas, dedicated. For allocation, storage, production, check-metering, etc.

FUS1020: General purpose, basic, dedicated meters. For most clean liquid applications.

Dedicated Wall-Mount

Indoor non-hazardous use



FUS1010, FUE1010, FUH1010, FUG1010



FUS1020

Portable

Non-hazardous use. Standard indoor or weatherproof



FUP1010 (standard portable)



FUP1010 (waterproof portable)



FUE1010 (standard, single channel)

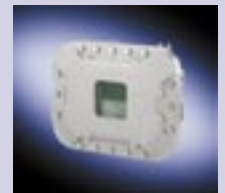


FUE1010 (standard, dual channel)

Explosion Proof
Indoor or outdoor hazardous area use



FUS1010, FUH1010, FUG1010 (compact)



FUS1010, FUH1010, FUG1010 (wall-mount)

Wetted

High performance: High accuracy and performance metering especially for the hydrocarbon industry.

General: General purpose. Suitable for conductive as well as non-conductive liquids.

Utility: Suitable for measurements in various water and heat meter systems and energy calculation in district heating applications.

High Performance
Durable and rugged enclosures



FUS060



SONO 3100

General
Certification and compact installation



SONO 3000 IP67



SONO 3000 AISI IP65



SONO 3300 IP67



SONOKIT

Utility
Custody transfer



FUS/E380

Benefits

Making your job easier



Siemens makes it simple to choose the best flowmeter for your application. With our wide selection of full featured flowmeters and the help of our engineers, you can always find the right flowmeter for your application. Our years of experience have proven that we provide the most accurate and reliable flowmeters on the market. They have no moving parts, no pressure drop and require minimum maintenance – they make your job easier.

Wetted flowmeters are recommended if you need

- proven high accuracy
- calibration certificates
- maintenance-free performance
- custody transfer approvals and certificates
- pipe sizes up to DN 4000 (160") with weld-in retrofit
- pipe sizes from DN 50 to 1200 (2"-48")
- compact and remote installation
- self-diagnostic for error-free logging
- ATEX approvals
- fieldbus communication

Clamp-on flowmeters are recommended if you need

- easy / low cost installation
- no interruption in operation; no need to cut pipe
- no periodic cleaning and no moving parts to wear or foul
- no pressure drop or energy loss
- no contact with media
- flow surveys or temporary installation
- large pipe diameters up to 9140 mm (360")
- wide turn down ratios
- media under high pressure
- gas or liquid measurement

Sonokit Retrofit for all retrofit applications where stability and accuracy are important.



FUP1010 clamp-on portable system is ideal for plant surveys. Both standard and waterproof battery powered versions are available. The rugged waterproof version is ideal for outdoor use. Both can operate in either WideBeam Transit-Time or Doppler mode, making them suitable for virtually any liquid, even those with high aeration or suspended solids. They can automatically switch modes as application conditions change and be moved easily from location to location.

	Clamp-On Solutions			Wetted Solutions	
	Dedicated		Portable	Standard	Weld-in Retrofit
Medias	Most Liquids	Natural and Process Gas	Most Liquids	Clean Liquids	Clean Liquids
Products	FUS1010 ¹⁾ FUE1010 ¹⁾ FUH1010 FUS1020	FUG1010	FUP1010 ¹⁾	SONO 3100 SONO 3300 FUS380	SONOKIT
Technologies	Transit-Time and Doppler ¹⁾	Transit-Time	Transit-Time and Doppler ¹⁾	Transit-Time	Transit-Time
Main Industries	Energy, Water & Wastewater, Oil, Chemical	Gas	Energy, Water & Wastewater, Oil, Chemical	Energy, Water & Wastewater, Oil	Energy, Water & Wastewater, Oil

¹⁾ FUS1010, FUE1010 and FUP1010 employ both Transit-Time and Doppler modes of operation.

Transmitters

The brain behind SITRANS F US advanced technology



The ultrasonic technology employs three main types: Transit-Time, WideBeam Transit-Time and Doppler signal processing. Transit-Time provides an innovative direct ultrasound transmission technique that ensures reliable and accurate signal detection for a wide range of processes. WideBeam Transit-Time is exceptional for the measurement of gas and Doppler technology makes it possible to measure liquids which contain solid particles.

Transit-Time technology

One of the keys to the ultrasonic flowmeter precision performance is its transmission technique. It shoots ultrasound pulses directly to the receiving transducer without bouncing them off the interior walls of the pipe. This way, the presence of any scale build-up on the interior pipe walls will not weaken or degrade transmitted signals.

Difficult applications involving many bends, valves or short inlet conditions often require closer examination to maximize accuracy and performance. Knowing that the quality of a Transit-Time flowmeter depends on its ability to

determine exactly when the ultrasound signal reaches the receiving transducer, Siemens engineers have developed a new correlation method that greatly improves signal detection.

WideBeam technology

Clamp-on flowmeters employ Siemens patented WideBeam Transit-Time technology, in which the pipe wall is utilized as an amplifier to optimize the signal to noise ratio and provide a wider area of vibration.

This technology increases precision by reducing the sensitivity to any change in the medium type or pressure. It can be used for steel, aluminum, titanium and plastic pipes and is especially valuable for energy, hydrocarbon process and gas applications.

Doppler technology

Doppler operation is suggested for liquids with extensive suspended solids or aeration, with up to 1% flow accuracy. Automatic switching back and forth between WideBeam Transit-Time and Doppler operation allows quick adaptation to varying conditions without changing meters.

SITRANS F US ultrasonic flowmeters achieve greater accuracy rates – 0.25% of actual flow – than earlier generations of Transit-Time flowmeters and Doppler-based systems.

Siemens line of ultrasonic flowmeters can detect weak signals, can be used for a wider spectrum of applications and is especially well suited for large pipes.

Siemens delivers industry specific solutions for:

- Off-Shore and On-Shore Installations
- Liquid Hydrocarbons
- Water & Wastewater
- HVAC and Power
- Natural and Process Gas
- Chemical Processes
- Pulp & Paper
- Cryogenics



HVAC and Power Applications

From power plants to distribution



SITRANS F US Wetted Solutions

They have the following key features:

As an industry leader within HVAC applications, Siemens provides a wide range of products, delivering everything from small components to complete application solutions.

Siemens flowmeter systems for district heating and cooling, SITRANS FUS380 and FUE380 are designed to provide the most accurate, high-resolution energy measurements possible.

They provide uncompromising performance for high volume, water-based district energy applications such as those found in power stations, exchange stations, chiller stations or transmission nets. The system is designed and approved for custody transfer according to OIML R75 class 2 and EN 1434 class 2.

FUS380 and FUE380 with a wide array of options give you the flexibility to customize your perfect flowmeter solution.

- Display with easy-to-configure settings
- Battery or mains powered
- Diagnostic capabilities for total control of all functions
- Compact or remote versions available
- Choice of pulse setting options allows connection to any energy meter
- Sealed for custody transfer – for total data security
- Optional digital communication

Both FUS380 and FUE380 can be combined with the SITRANS FUE950 energy calculator and a pair of temperature sensors making them a robust and reliable energy meter system that provides an optimized cost solution.



FUS/E380 can be used as part of a robust, reliable energy meter system.



FUE950 energy calculator

	FUS/E380	SONOKIT
Display	LCD 8 characters	LCD 2x16 characters backlight
Keypad	1 push button	4 infrared keys
Accuracy	$< \pm 0.5\%$ of rate	
Flow Range	$Q_n = 15-18000 \text{ m}^3/\text{h}$	$Q_n = 380-144000 \text{ m}^3/\text{h}$
Pipe Diameters	DN 50-1200 (2"-48")	DN 100-4000 (4"-160")
Data Outputs	2 x Pulse	1 x Analog, 1 x Pulse, 1 x Relay
Sensor Materials	Carbon Steel	AISI 316
Communications	MODBUS	PROFIBUS PA, HART
Enclosure Ratings	Compact IP67 (NEMA 4X/6)	IP67 (NEMA 4X/6)
Approvals	EN 1434, OIML R 75	ATEX

Siemens ultrasonic flowmeters are ideal for the energy industry, both for district energy heating/cooling applications and for power plants.

The high precision and reliability provided by the ultrasonic technology lives up to the critical performance demanded by the industry today.

SITRANS F US Clamp-on Solutions Measuring up to energy and power needs

Siemens clamp-on solutions for HVAC and power complete a full range of flowmeters suiting all your application needs.

Key application areas include high precision revenue grade sub-metering of thermal energy production, chilled or hot water HVAC installations and energy efficiency monitoring of major HVAC equipment. The technology is widely used in nuclear power plants.

FUE1010 flowmeters with their rugged and high precision characteristics are ideally suited for thermal energy and power applications. The product is available in single and dual channel models, in both portable and dedicated versions. Dual channel versions can be configured to measure two different pipes, or to apply the second channel as a dual path for convoluted piping configurations.

Heating and cooling applications include

- Chilled Water Sub-Metering
- Hot Water Sub-Metering
- Steam / Condensate
- Condenser Water
- Potable Water
- Glycol
- Thermal Storage
- River or Lake Water
- Lake Source Cooling
- Chemical Feed
- Ammonia Feed

Power plant applications include

- Coolant Flows
- Fuel Flow (Coal Slurry or Oil)
- Penstock Pipes up to 9.14 m (360")
- Nuclear Feed Water up to 232 °C (450 °F)
- Potable and Wastewater
- Chemical Flows

FUS1010, FUP1010 and FUS1020 can also be utilized for less demanding energy industry applications. Please refer to the water and wastewater sections for more information about these systems.



Portability creates profitability

As a stand-alone energy meter, SITRANS FUE1010 can be used as a remote communication module. Inputs from other data sources are transferred into the built-in datalogger, making it easy to time-stamp all data and download it for billing, efficiency and operation analysis.



FUE1010

	FUE1010 Dedicated Wall Mount	FUE1010 Portable
Display	128 x 240 pixel LCD with backlight	
Keypad	33 keypad buttons with tactile feedback	
Accuracy	± 0.5% ... 1.0% of flow, for velocities greater than 0.3 m/s (1 ft/s)	
Flow Range	± 12 m/s (± 40 ft/s), bidirectional	
Pipe Diameters	6.4 mm-9.14 m (0.25"-360")	
Data Outputs	2x Current, 2x Voltage, 4x Status Alarm Relays, 2x Frequency	
Data Inputs	2x Current, 2x Temperature	2x Current, 2x Voltage, 2x-4x Temperature
Communications	RS232, MODBUS / N2, modem	RS232
Enclosure Ratings	FM, FMc, CE	UL, ULc, CE
Approvals	IP65 (NEMA 4X)	IP40 (NEMA 12)

Water & Wastewater Applications

Meeting today's demands



SONO 3300 offers a price/performance ratio that is hard to beat.

SITRANS F US Wetted Solutions

Reliable and maintenance free

Accurate water usage measurement is absolutely essential to the implementation of fair billing practices. For that, you need a robust, reliable flowmeter that can work under the most difficult conditions while being resistant to impurities or obstacles in the water.

SITRANS F US SONO 3300 is an excellent choice for all purpose applications for water and wastewater, irrigation, or general industrial applications. While the transducers cannot be changed and the choice of construction material is more limited, SONO 3300 offers a price/performance ratio that's hard to beat.

SITRANS FUS380 can be used in various water and wastewater applications where pipe sizes in the range from DN 50 to 1200 (2" to 48") are needed. It can be delivered in a battery or mains powered version or with a battery as an optional backup. The battery has a life time of up to 6 years. Siemens is the first company to introduce such

a battery powered ultrasonic flowmeter solution into the market.

Retrofit solutions: easy installation on-site
Another ideal solution for the water and wastewater industry is weld-in retrofit. The complete Siemens offering includes SONOKIT for general industries and FUS880 for irrigation purposes.

SONOKIT takes the complication out of retrofitting on virtually any size or type of pipe, making it an extremely cost effective and accurate solution for large diameter pipes. You can even install it on pipes with flow and under pressure (hot tap installation).

SITRANS FUS880 is a battery powered retrofit flowmeter ideal for irrigation applications with pipe sizes measuring from DN 200 to 1200 (8" to 48") in diameter. This versatile flowmeter can also be installed underground onto existing pipelines.

	FUS380	SONO 3300	SONOKIT
Display	LCD 8 characters	LCD 2x16 characters backlight	LCD 2x16 characters backlight
Keypad	1 push button	6 push buttons	4 infrared keys
Accuracy	< ± 0.5% of rate		
Flow Range	Q _n = 15-18000 m ³ /h	Q _n = 36-2000 m ³ /h	Q _n = 380-144000 m ³ /h
Pipe Diameters	DN 50 – 1200 (2"-48")	DN 50 – 300 (2"-12")	DN 100-4000 (4"-160")
Data Outputs	2x Pulse	1 x Analog, 1 x Pulse, 1 x Relay	1 x Analog, 1 x Pulse, 1 x Relay
Sensor Materials	Carbon Steel	DN 50-150: Cast Steel DN 200-300: Mild steel	AISI 316
Communications	MODBUS	n/a	PROFIBUS PA, HART
Enclosure Ratings	Compact or remote IP67 (NEMA 4X/6)	Compact or remote IP67 (NEMA 4X/6) IP65 (NEMA 4X)	IP67 (NEMA 4X/6)
Approvals	n/a	n/a	ATEX

Siemens ultrasonic flowmeters deliver solutions for every water and wastewater application imaginable. Examples include: general management, control of industry

processes, dosing control, quality control and minimization of high-cost chemicals. Siemens always provides the ideal solution.

SITRANS F US Clamp-on Solutions

Dual technology that suits all applications

Siemens offers state-of-the-art clamp-on Transit-Time and Doppler ultrasonic flowmeters engineered to measure a diverse range of flow applications found in municipal and industrial water and wastewater industries. Siemens clamp-on systems range from simple single meter installations to complete flowmetering and/or leak detection systems for large distribution or collection systems.

SITRANS FUS1010 provides accurate, non-intrusive mass and volumetric flow measurement in full pipes. It is simple to install; pipes are not cut and operations are not interrupted. FUS1010 is field programmable for two modes of operation: WideBeam Transit-Time or Fast Fourier Transform Doppler for quick adaptation to changing conditions.

Transit-Time operation is the preferred mode for relatively homogeneous liquids, with an accuracy of up to 0.5% of flow. Doppler operation is available for liquids

with extensive suspended solids or aeration, with up to 1% flow accuracy.

Having both modes of operation ensures suitability for virtually any water or wastewater application. The system can automatically switch from one mode of operation to the other as conditions change – there is no need to change meters.

Portable and Efficient

SITRANS FUP1010 is like FUS1010 but it is available in a standard portable or rugged submersible portable enclosure. The FUP1010 system is frequently used as part of infiltration and inflow studies, or as portable or permanently installed meters at treatment plants or in collection systems.

SITRANS FUS1020 is a basic flowmeter that provides affordable high performance for many flow measurement applications. WideBeam Transit-Time operation is provided but Doppler is not. Single and dual channel versions are available.



FUS1010, FUS1020 and FUP1010 dedicated and portable clamp-on solutions.

	FUS1010 Dedicated Wall Mount	FUP1010 Standard Portable	FUP1010 Waterproof Portable	FUS1020 Dedicated Wall Mount
Display	128 x 240 pixel LCD with backlight			2 x 16 alphanumeric LCD
Keypad	33 keypad buttons with tactile feedback			5 key
Accuracy	± 0.5% ... 1.0%	± 0.5% ... 2.0%		± 0.5% ... 1.0%
Flow Range	± 12 m/s (± 40 ft/s), bidirectional			
Pipe Diameters	6.4 mm ... 9.14 m (0.25" ... 360")			
Data Outputs	2x Current, 2x Voltage, 4x Status Alarm, Dedicated: 2x Temperature, Portable: 2x Frequency			2x Current, 1x Pgn, 1...2x Relays (opt.)
Data Inputs	2x Current, 2x Voltage, 2x Temperature; Dedicated: 2x Frequency			Digital Inputs only
Communications	RS232, Modbus, Ethernet	RS232		RS232, DB9 connector
Enclosure Ratings	IP65 (NEMA 4X)	IP40 (NEMA 12)	IP67/63 (NEMA 6/3R)	IP65 (NEMA 4)
Approvals	FM, CSA, ATEX	UL, ULc, CE		UL, ULc

Hydrocarbon Applications

Rugged, durable and accurate



SITRANS F US Wetted Solutions

The power of protection

Siemens delivers high performance meters and solutions that are truly customer specified. Just ask one of our references in the hydrocarbon processing. When you need rugged, durable and accurate metering count on Siemens. We meet your toughest demands

SITRANS F US SONO 3100 combined with SITRANS FUS060 is ideal for difficult applications like petrochemical flow processes, distribution and on/offshore applications. The sensor is built for rugged durability, is available in both carbon steel and stainless steel enclosure and has integrated transducers that can easily be changed without the need for downtime or process shutdown.

FUS060 is a unique transmitter for custody transfer flow measurement of hydrocarbons. It offers increased turndown on current offerings

while meeting the requirements of OIML R117 custody transfer standards. FUS060 is ATEX certified; and has Fieldbus communication.

It's an easy to mount solution that delivers outstanding high speed processing and it comes with 2 tracks as standard or an optional 4 tracks for better performance and higher accuracy.

FUS060 improves on current technology available to give the increased turndown of 10:1 while still meeting the accuracy and repeatability demands of the hydrocarbon industry. It is the best solution for fiscal metering.



SITRANS F US SONO 3100 and SITRANS FUS060 are built for rugged durability and reliable custody transfer.



FUS060

	SONO 3100	SONOKIT
Display	LCD 2x16 characters backlight	
Keypad	4 infrared keys	
Repeatability	<± 0.15% of flowrate	
Flow Range	Q _n = 28-13200 m ³ /h	Q _n = 380-144000 m ³ /h
Pipe Diameters	DN 100-1200 (4"-48")	DN 100-4000 (4"-160")
Data Outputs	1 x Analog, 1 x Pulse, 1 x Relay	
Sensor Materials	Stainless and carbon steel	
Communications	PROFIBUS PA, HART	
Enclosure Ratings	IP67 (NEMA 4X/6)	
Approvals	ATEX	

Wetted

If your flowmetering system were a bank, would you make money or lose money? Every stage of the oil industry has flow measurement applications that have an impact

on the bottom line. Given the high value of liquid hydrocarbons today, doesn't your business deserve the best ultrasonic flowmetering technology available?

SITRANS F US Clamp-on Solutions

Install without interrupting operations

SITRANS FUH1010 flowmeters are ideal for crude oil, refined petroleum or liquefied gas applications.

Hydrocarbon operations require equipment you can rely on. With FUH1010 there is minimal maintenance with no moving parts to foul or wear and no pressure drop or energy loss. Available in single, dual, or (optional) three or four beam versions, our WideBeam technology ensures maximum accuracy. Siemens ultrasonic clamp-on flowmeters for the hydrocarbon industry can be divided in three product categories

Interface detectors/density meters

- Precise identification of interfaces
- Scraper "pig" indication
- Product identification
- Density indication

Viscosity compensated volumetric flowmeters

- Liquids having a wide viscosity range
- Viscosity changes are dynamically compensated

Standard volume (net) mass flowmeters

- Standard (net) volume flow measurement
- Suitable for use in leak detection systems
- Mass flow output
- Interface detection
- Scraper („pig“) detection

FUS1010 and FUP1010 flowmeters can also be used for many hydrocarbon applications, under limited application conditions such as single liquids, stable operating conditions and limited viscosity range. Please refer to the water and wastewater section for specifications of FUS1010 and FUP1010.



FUH1010 designed specifically for hydrocarbon pipeline operations.



	Dedicated Wall Mount	Wall Mount Explosion Proof	Compact Explosion Proof
Display	128 x 240 pixel LCD with backlight		2 x 16 alphanumeric LCD
Keypad	33 keypad buttons with tactile feedback		5 magnetic switches
Repeatability	± 0.15% ... 0.3% of flow, depending on version ± 0.05 of API # for Interface Detectors/Density Meters		
Flow Range	± 12 m/s (± 40 ft/s), bidirectional		
Pipe Diameters	6.4 mm ... 9.14 m (0.25" ... 360")		
Data Outputs	2x Current, 2x Voltage, 2x Pulse Rate (TTL), 4x Relays		2x Current, 2x Output Logic Gates, 1x Pulse Rate
Data Inputs	4x Current, 2x Temperature, 4x Digital		4x Current, 2x Temperature, 2x Digital
Communications	RS232, MODBUS, Ethernet, Modem		RS232
Enclosure Ratings	IP65 (NEMA 4X)	IP66 (NEMA 7)	IP65 (NEMA 7)
Approvals	FM, CSA, ATEX		

Gas Applications

In the field and in the lab, our solutions prove superior



WideBeam Transit-Time ultrasonic flow measurement technology has been used extensively for liquids since its introduction in 1972. After years of research and extensive product development, independent laboratory tests field trial installations confirm that WideBeam technology provides superior gas measurement.

SITRANS FUG1010 flowmeters are ideal for most natural and process gas industry applications, including checkmetering, allocation, flow survey verification, production, and more. They install easily and have a number of outstanding advantages

- There is no need to cut the pipe or stop the flow
- External transducers do not require periodic cleaning
- No moving parts to wear or foul
- Eliminates the pressure drop or energy loss typical of orifice metering
- Wide turn-down ratio
- Choice of single, dual or optional four beam versions
- WideBeam technology provides improved accuracy
- Zeromatic Path automatically sets zero without stopping flow and reduces zero drift, even at low flow
- Tolerant of most wet gas conditions
- Immune to most pressure-reducing valve noise
- Optional rugged stainless steel transducer enclosure permits permanent and direct burial installations
- Easy to use "DataView" diagnostic software
- Complete application and operation diagnostics, to assure calibration and operational integrity
- Upward compatibility and compliance with AGA-10 speed of sound measurement practice
- Internal AGA-8 table for fixed gas composition is available for standard volume computation



FUG1010 ideal for check-metering and allocation applications with field proven accuracy.

	Standard Wall Mount	Explosion Proof Wall Mount	Compact Explosion Proof
Display	128 x 240 pixel LCD with backlight	2 x 16 alphanumeric LCD	
Keypad	33 keypad buttons with tactile feedback	5 magnetic switches	
Accuracy	1% ... 2% of actual volume reading (higher accuracy is pipe condition and flow profile dependent)		
Flow Range	± 30 m/s (± 100 ft/s), bidirectional		
Pipe Diameters	25 mm ... 1.52 m (1" ... 60") (for other sizes, consult Siemens)		
Minimum Gas Pressure	7 ... 10 bar (100 ... 145 psi), typical (plastic pipes support operation at atmospheric pressure)		
Data Outputs	2x Current, 2x Voltage, 2x Digital Pulses, 2x TTL pulse square wave, 4x Relays	2x Current, 1x Digital Pulse, 2x Output Logic Gates	
Data Inputs	4x Current, 1x Totalizer clear switch, 1x Totalizer hold switch	2x Current, 1x Totalizer clear and hold switches	
Communications	RS232		
Enclosure Ratings	IP65 (NEMA 4X)	IP66 (NEMA 7)	IP65 (NEMA 7)
Approvals	FM, CSA, ATEX		

Portable Clamp-On Ultrasonic Flowmeters

The ideal solution for plant surveys!

Clamp-on ultrasonic flowmeters utilize external transducers that can quickly and easily be installed on the outside of the pipe. They can also be easily moved from one job site to another. There is no need to cut the pipe or interrupt the flow. Siemens ultrasonic clamp-on battery powered portable flowmeters are available in two different versions:

A standard portable meter with a compact plastic IP40 (NEMA 12) enclosure intended for indoor use. It weighs only 3.4 kg (7.5 lbs), making it extremely easy to carry from one location to another.

A waterproof portable meter with an IP67/63 (NEMA 6/3R) enclosure ideal for outdoor use. It can be left in place without worrying about rain damage. The rugged, impact resistant plastic case enables it to withstand rough treatment that would destroy most other meters.

Both types of portable meters can operate in either WideBeam Transit-Time or Fast Fourier Transform Doppler mode making them suitable for virtually any liquid, even those with high aeration or suspended solids. These portable meters can automatically switch modes as application conditions change.

Options include a pipe wall thickness gauge and single or dual channel or path operation.

- **Transit-Time operation** is the preferred mode for relatively homogeneous liquids, with an accuracy of up to 0.5% of flow.
- **Doppler operation** is available, for liquids with extensive suspended solids or aeration, with up to 1% flow accuracy.

This makes the portable clamp-on ultrasonic flowmeters the ideal choice for flow surveys!

Key Industries

Portable flowmeters are suitable for a wide variety of liquid applications in many industries, including

- **Water and Wastewater**
The ability to switch from Transit-Time to Doppler operation is particularly valuable due to the possible presence of suspended solids. See water and wastewater section for more information.
- **Energy and Power**
Specialized portable versions are available with the energy measurement capabilities necessary for this industry. See HVAC section for more information.
- **Chemical**
Externally mounted transducers do not touch the fluid and there is no possible contamination when moving the meter from installation to installation making portability and non-intrusive sensors a big advantage for the chemical industry.



Benefits

Like other clamp-on ultrasonic meters, portable meters feature

- Easy installation; no need to cut pipe or stop flow
- Minimal maintenance
- No moving parts to wear or foul
- No pressure drop or energy loss
- Wide turn-down ratio
- Choice of single or dual channel models minimizes total cost
- Zeromatic Path automatically sets zero without stopping flow and reduces zero drift, even at low flow



Your Siemens partners worldwide

Find a Siemens contact in your area at:
www.siemens.com/processinstrumentation

For additional information, visit:
www.siemens.com/flow



Siemens Flow Instruments A/S
DK-6430 NORDBORG
DENMARK

www.siemens.com/processautomation

The information provided in this brochure contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

All product designations may be trademarks or product names of Siemens AG or supplier companies whose use by third parties for their own purposes could violate the rights of the owners.