

SITRANS FUE1010 Clamp-on Energy Benefits

Every company has the need to find a way to verify the efficiency of energy generating equipment and optimize the energy load and usage. Our clamp-on flowmeter can perform the task without interrupting the customer's existing operations. Listed here are a few points explaining how the clamp-on product can help, and why clamp-on should be selected.



The SITRANS FUE1010 clamp-on ultrasonic flowmeter is the perfect choice for installations with constantly changing flow rates commonly found in the HVAC industry. Since the implementation of variable speed pumps used to distribute chilled water in air conditioning systems, conventional flow technologies have had a difficult time coping with low load periods and low flow. The clamp-on technology, however, accurately measures the flow of any application; regardless of velocity.

The SITRANS FUE1010 avoids the performance and reliability problems that afflict conventional intrusive

thermal energy flowmeters. Its accuracy, wide bi-directional rangeability, and high sensitivity improve the energy efficiency of most HVAC applications with no pressure drop whatsoever.

The dedicated version is available in single and dual channel models, and the portable as dual channel. Using the dual channel function, the meter can be configured to measure two different pipes, or to apply the second channel as a dual path for convoluted pipe configurations. The built-in data logger, makes it easy to time-stamp all data and download it for billing, efficiency and operation analysis.

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	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	2xCurrent, 2xVoltage, 4xStatus Alarm Relays, 2xFrequency	
Data inputs	2xCurrent, 2xTemperature	2xCurrent, 2xVoltage, 2x-4xTemperature
Communication	RS232, MODBUS / N2	RS232
Enclosure ratings	IP65 (NEMA 4X)	IP40 (NEMA 1)
Approvals	FM, CSA, CE, C-TICK	UL, ULc, CE



Where to use it

- To perform flow, energy survey and auditing work
- For retrofit projects as well as new projects
- For large pipes to save cost
- On multiple channels to reduce cost
- When unique diagnostic functions are required
- For non-intrusive retrofit applications – no need to cut the pipe or stop the flow

Why use it

- Well recognized flow measurement technology by ISO, API and AGA
- Save installation and maintenance cost
- Wide turn down ratio and capability of measuring down to zero flow
- More economic for large pipes
- Capable of measuring 1-4 pipes using one transmitter (cost savings)
- Help achieve LEED certification
- Continual energy monitoring
- Clamp-on RTD pair with 0.01 degree Celsius error versus much higher error for other RTD/transmitters
- True energy flowmeters without the energy calculator requirements (BTU, Tons, t/h, t/d, Kw/ton, Calories)

- Available with or without built-in energy calculation allowing for cost savings on applications not requiring an energy calculation
- Ideal for energy survey using battery powered portable energy flowmeter
- Built-in specific heat tables for water and glycol
- Measure conductive or non conductive liquid
- Measure both liquid and gas
- No moving parts and very little maintenance
- Measure all kinds of liquids on all sizes of pipes of all types of pipe materials

What are some of the diagnostic functions?

- Detect the direction of flow (Bi-directional)
- Detect aeration in the liquid
- Detect change in liquid properties
- Detect the liquid interface or un-authorized product intrusion
- Detect if pipe is empty
- Detect pipe wall build-up
- Detect leaking valves with our stable zero flow measurement capability
- Identify the efficiency of pump, heat exchanger, chiller, boiler, etc.
- Detect how much glycol is in the water
- With self diagnostic function, it can tell how healthy the meter is, in order to extend the recalibration frequency

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SITRANS F US Clamp-on Ultrasonic Flowmeters for the HVAC Industry

High sensitivity clamp-on ultrasonic flowmeters from Siemens improve building energy efficiency of heating, cooling ventilation and air-conditioning installations by precisely measuring the energy flow.



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The SITRANS FUE1010 is ideal for measuring a wide range of power plant, building management,

university, and district energy heating and cooling applications such as:

- Chilled water sub-metering
- Hot water sub-metering
- Condenser water
- Potable water
- Glycol
- Thermal storage
- River or lake water
- Lake source cooling
- Chemical feed
- Ammonia feed

As with any clamp-on device, it is not necessary to cut the pipe or shut down operations to install the flowmeter; the sensors are quickly and easily mounted on the outside

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of the pipe minimizing maintenance expenses and preventing deposits from forming.

Flexible product offering

Siemens clamp-on flowmeters for the HVAC industry range from portable and dedicated flowmeters to high precision thermal energy meters.

The dedicated SITRANS FUE1010 avoids the performance and reliability problems that afflict conventional intrusive thermal energy flowmeters. Its accuracy, wide bi-directional rangeability, and high sensitivity improve the energy efficiency of most HVAC applications with no pressure drop.

The SITRANS FUE1010 can also be supplied as a rugged, high precision thermal energy flowmeter utilizing precision-matched 1000 Ohm platinum RTD clamp-on or insert sensors combined with four-wire temperature cables. This assures accuracy independent of distance between the sensors and the transmitter. It is available in an IP65 (NEMA 4X) enclosure and as single and dual channel models.

The dual meter is configurable to measure two different pipes, or to apply the second channel as a dual path for applications with convoluted piping configurations. The thermal meter comes in a dedicated as well as a field use facilitated portable version with battery that ensures up to 7 hours of normal operation.

As a stand-alone thermal energy meter, SITRANS FUE1010 also becomes a remote communication module. The meter accepts 4–20 mA inputs from other data sources, such

as for electrical KW load, pressure and steam flow. This information is integrated into its built-in 1 MB datalogger capability through which time-stamps of billing data, efficiency, and operation analysis can be downloaded to a PC via the included RS232 cable.

The SITRANS FUE1010 is also available as an all-inclusive HVAC chilled water check metering kit. Developed especially for verifying the accuracy and performance of any brand or type of flowmeter. It is perfect for areas where no metering exists and ideal for balancing building performance. Dual channel models can measure two separate applications at the same time.

Solutions for simple applications

For less demanding energy industry applications, where only flow is measured and no built-in BTU calculator is required, Siemens also offers the SITRANS FUS1010 and SITRANS FUP1010 standard flowmeters as well as the basic SITRANS FST020.

The SITRANS FUS1010 has a dedicated enclosure and is available in single, dual or four channel versions. SITRANS FUP1010 comes in a waterproof portable enclosure available in single or dual channel.

The SITRANS FST020 is an affordable flow meter featuring specifications compatible with basic application requirements: one channel, limited configuration options that make product selection straightforward, RS232 communication and lastly, a simple and user-friendly design that not only ensures easy set-up and configuration but also delivery times up to par with market expectations.



Unique benefits of the SITRANS FUE1010 Check Metering Kit at a glance:

- Performance check or verification of any type or brand of energy meter and surveys on non-metered applications
- Dual channel meter for measurement on one or two pipes
- Precision-matched 1000 Ohm platinum clamp-on or insert RTD's for added precision
- Output options include cooling load (kW/ton), coefficient of performance (COP) and energy efficiency ratio (EER)
- Built-in BTU measurement
- Field use facilitated by meter portability and with battery that ensures up to 7 hours of normal operation
- Bi-directional measurement

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