Energy-saving flowmeters and energy meters for HVAC

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HVAC

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Reliable flowmeters and energy meters for HVAC applications

Siemens provides a breadth of product offerings and can offer a single, comprehensive solution for your HVAC applications; controling comfort and efficiency in buildings – worldwide.

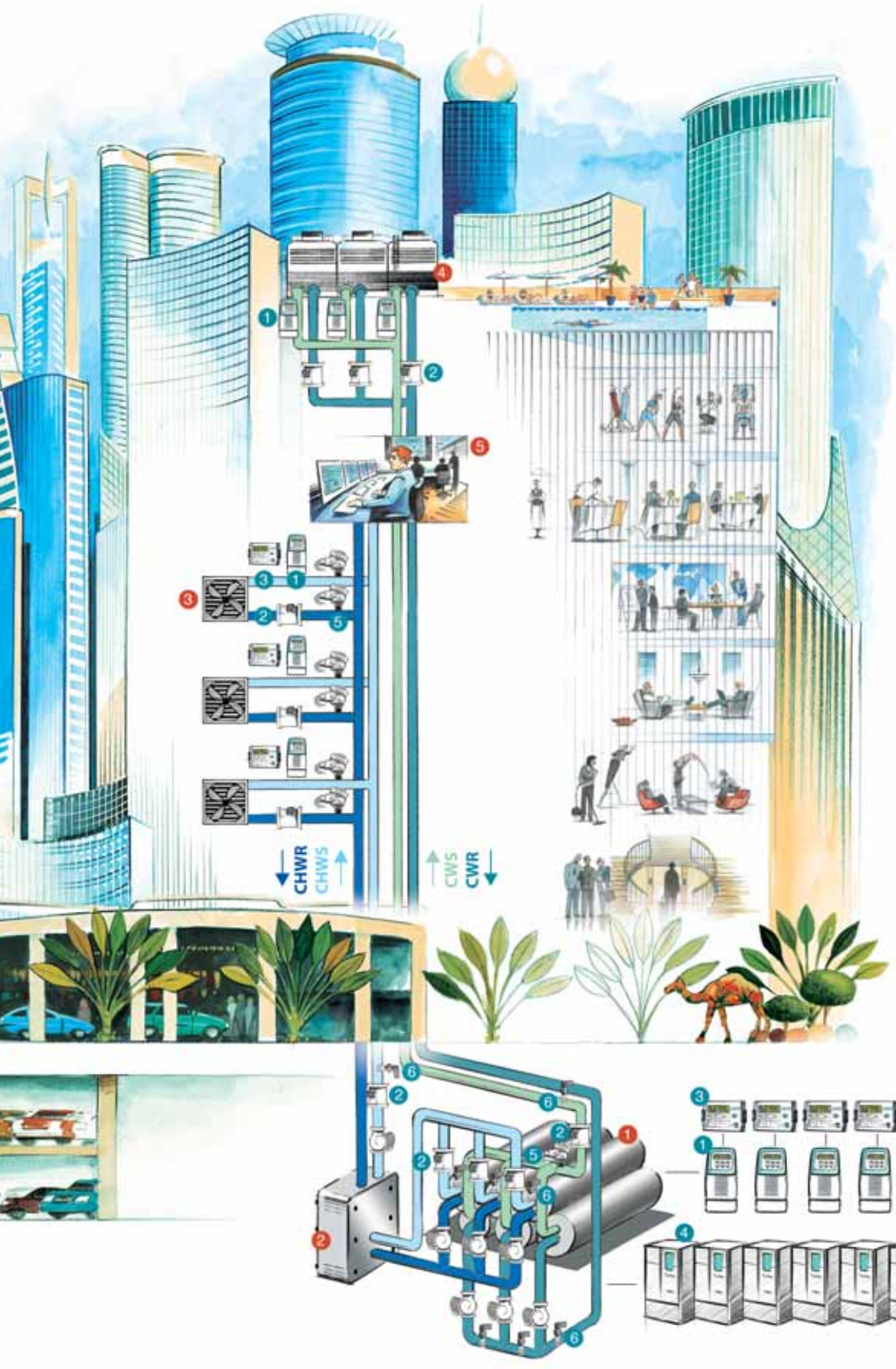
Whether your application is new or existing, Siemens provides flowmeter and energy metering solutions to help ensure that your heating and cooling system performs flawlessly under the most rigorous conditions.

Siemens for building comfort
Siemens flow-, temperature- and energy-meters are used in a variety of interlaced cooling circuits. These applications include airports, hotels as well as office blocks, university facilities, shopping complexes, hospitals and even residential developments.

Imagine the opportunities
Cooling related costs can be as high as 30% of the operational costs of a building. By measuring the flow of water throughout a cooling system, SITRANS F flowmeters give you total control over your system, enabling you to dramatically reduce costs and keep them down. Reduced energy costs alone can pay for your investment in less than two years.

	Electromagnetic Flowmeter SITRANS F M		Ultrasonic Flowmeter - SITRANS F US Wetted		Clamp-on	Energy Meter SITRANS F UE
	MAG 5000/5100 W	**MAG 8000 w/data-logger**	**FUS380 w/data-logger**	**SONOKIT Retrofit/SONO 3300**	**FUE1010 Clamp-on**	**FUE950**
						
Sensor size	DN 25 – DN 1200 1" – 48"	DN 25 – DN 600 1" – 24"	DN 50 – DN 1200 2" – 48"	DN 100 – DN 4000 4" – 160"	6.4 mm – 9.14 m (0.25" – 360")	Diff. temp.: Heating: 3 –150 K Cooling: 2 –20 K
Process temp.	0 – 70 °C 32 – 158 °F	0 – 70 °C 32 – 158 °F	0 – 200 °C 32 – 395 °F	0 – 200 °C 32 – 395 °F	-40 – 120 °C (230 °C) -40 – 250 °F (450 °F)	
Pressure rating	PN 10, PN 16, PN 40 Class 150 / 300	PN 10, PN 16, PN 40 Class 150	PN 10, PN 16, PN 40 Class 150 / 300	PN 40 Class 300	Limited only by pipe	
Straight inlet	5 x DN 5 x pipe diameter		10 x DN 10 x pipe diameter 2-track		10 x pipe diameter up 5 x pipe diameter down	Temperature probes Pt 500 / 2 wire
Power supply	Mains	Battery or mains	Battery or mains	Mains	Mains	Battery or mains
Display	3 lines 20 characters	8 digits, index and icons for status information		3 Mains 20 characters	128 x 240 pixel LCD with backlight	8-digit display
Output	4-20 mA Pulse, relay	2 pulse outputs can be configured to volume, alarm and call-up		4 – 20 mA pulse	Current, frequency, voltage, status alarm	Bus communication, energy and volume pulse
Accuracy	0.25% or 0.5%	0.2% or 0.4%	Dynamic range 1:20 0.5 %	Typical 1%	± 0.5% – 1.0% of flow, over 0.3 m/s (1 ft/s)	0.5%
Approvals and Standards	Designed to global standard OIML R49 and MI001		PTB Class C OIML R75 Class 4		FM, FMc, CE	Heat.: EN1434 Cool.: EN1434 pr.A1

Helping you get the most of your investment



You can't control costs if you can't measure. Siemens enable you to measure and control every aspect of your cooling systems – so you can better manage your facilities.

1 Chiller
- Water flow for chiller loading optimisation
- Water flow for balancing
- Energy flow for chiller performance monitoring
- Energy flow for system optimisation
- water consumption monitoring
- chemical rate control

2 Heat exchanger
- primary and secondary exchanger

3 AHU/FCU - Air Handling and Fan Coil Units
- Energy flow for billing
- Water flow for heat exchanger

4 Cooling tower
- Energy flow to monitor tower performance
- Water flow for tower load sharing
- Water required to replace evaporation losses
- Water required to reduce dissolved solids concentration by dilution
- Chemical addition rate control

5 Control room (BMS)
- Building Management System

1 Flow transmitter

2 Flow sensor
- Measuring and control of water flow

3 Energy calculator

4 Variable speed drive
- Pump and fan control

5 Temperature transmitter

6 Pressure transmitter

Flowmeter and energy meter selection – What's right for you?

The choice of products has to be right from the start and adaptable to change. That's why consultants, contractors, facilities managers and building owners turn to Siemens for their system needs.

SITRANS F M
Electromagnetic flowmeters
For the vast majority of chilled water applications the electromagnetic flowmeter is the best choice and this high accuracy flowmeter is used to replace conventional mechanical meters when greater functionality is required. A robust design means no or only limited maintenance. An integral self-monitoring circuit surveys all functions and gives an alarm in the event of any malfunction.

SITRANS FUE950 Energy meter
SITRANS FUE950 is a universal thermal energy calculator which is designed for cooling and heating systems. The 8-digit LCD display has associated pictograms for the various functions. The energy calculator has extremely high accuracy. It is especially well suited for cooling applications with low differential temperature.

SITRANS F US
Ultrasonic flowmeters
In combined heating and cooling applications the ultrasonic flowmeter is the best choice. It provides high accuracy energy measurements and measures all water qualities like special treated water with low electric conductivity and magnetite. In buildings where the air-conditioning can't be turned off, SITRANS F US enables retrofitting of transducers under pressure with clamp-on or hot-tap technology - very cost effective solutions.

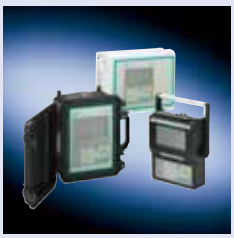
''Plug & Play''
Communication modules
The flow meters and energy meters can easily be equipped with modules which allow data transmission to the SCADA system for monitoring, control and recording, so you are always up-to-date.

Main features:

SITRANS F M
Electromagnetic flowmeter
- *Flexible installation*
- *Maintenance free*
- *Accurate*
- *Verification on site*

SITRANS F US
Ultrasonic flowmeter
- *Maintenance free*
- *Accurate*
- *Hot-Tap installation*

SITRANS FUE950
Energy meter
- *Pt 500*
- *2 wire*
- *Accurate*
- *Approved*



SITRANS FUE1010
Clamp-on ultrasonic transit-time flowmeter
- *Installs without interrupting flow*
- *Maintenance free*
- *Dedicated & portable survey models*

Save more with Siemens energy-saving solutions for HVAC

Siemens flowmeters help you do an easier job of managing flow. Whether it is installation, managing operations or verifying continuous accuracy, customers rely on SITRANS F M and SITRANS F US flowmeters to improve their entire value chain of activities.

Greater flexibility
- Wide product program
- Compact or remote installation
- Data communication modules for easy integration
- Hot-tap or clamp-on installation possible

Easier to commission
- User settings automatically stored in the SENSORPROM

Easier to operate & service
- No moving parts
- Robust construction and materials
- Uniform user interface
- Transmitter replacement requires no programming using SENSORPROM technology

Room for growth
- Add-on communication modules allow for future upgrades without investing in a new flowmeter

Verification & diagnostics
- Long term accuracy and system verification with MAGFLO Verificator
- Built-in diagnostic facility

Biopolis - a leading centre for biomedical sciences in Asia specifies Siemens
Biopolis Phase 1 is a 2.0 million sq ft biomedical complex. More than 400 SITRANS F M flow-meters and 340 energy meters were installed for 7 buildings to measure the flow from each chiller for load optimization, chilled water main header to individual buildings to achieve proper flow balance. For the fan coil units (FCU) at each floor level feed water is measured. Combined with energy meters the solution calculates the energy load based on actual usage for billing purposes.

Copenhagen Airport
150 SITRANS F M electromagnetic flowmeters from Siemens secure precise billing of heat for the customers of Copenhagen Airport, typically being airline companies. Due to water with a high conductivity and only limited build-in space, the electromagnetic flowmeter made the best choice for the application. Despite the SITRANS F M meters being a little more expensive, both airport and airline companies agreed on the electromagnetic solution because as they put it; with an accuracy of 0.25% instead of 3% offered by other meter types, the additional price for the electromagnetic flowmeter is easily recovered.

World famous hotel, Shangri-La in Singapore goes ultrasonic with SITRANS F US
As a six star hotel, the Shangri-La knew it couldn't compromise its reputation. The hotel set a target to reduce its energy bill without compromising its comfort for customers. Therefore 12 sets of SITRANS F US ultrasonic flowmeters for retrofitting from Siemens manage the efficiency of the air conditioning system. The SITRANS F US flowmeter was chosen because of its high accuracy and the ability to be installed without disrupting the normal running of the hotel, the so-called hot-tap installation.

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