

# Thermal mass flowmeters

## Common applications



Thermal mass flowmeters for direct mass flow measurement with high accuracy, short response times, reliability and easy installation.

### Measurement made easy

SensyMaster FTM450

### Introduction

ABB's thermal mass flowmeters (SensyMaster) is the best choice for industrial and test rig applications, where the combination of direct mass flow measurement with high accuracy, short response times, reliability and easy installation is an everyday requirement.

Direct gas mass flow metering solutions succeed in a variety of environments and are essential for example for burner control, automotive test benches, at key stages across the wastewater process and in the increasingly common measurement of biogas and activation air.

### Additional information

Additional information on Thermal mass flowmeters is available for download free of charge at [www.abb.com/flow](http://www.abb.com/flow).

Alternatively simply scan this code:



The following shows some of the countless applications ABB's thermal mass flowmeter has proven to be successful in.

Location	Application	Measurement task
Aluminum smelters	Natural gas and air flow	Combustion control for boilers and furnaces
	Argon flow	Monitor argon in the smelting process
Coal fired power plant	Primary and secondary air flow	Monitoring the primary and secondary (reheat) air flow in coal fired utilities for boiler efficiency
Combustion control in boilers, burners and furnaces	Natural gas, oxygen, air flow	Monitoring and controlling of combustion air, oxygen and natural gas ratios are critical for optimal efficiency, stoichiometric ratio control
Compressed air systems	Perform audits	Improve overall cost effectiveness of compressed air system
	Detect leaks	Eliminate energy waste to improve efficiency of overall system
	Substation metering	Reduce energy expense
Fiberglass production	Combustion control	Monitor flow rate of natural gas and oxygen to control air-fuel ratio to optimize burners resulting in higher quality products and greater product yields
Flare gas	Exhaust flow	Large measuring range to monitor normal and upset conditions
		Monitor individual flare header pipes
Food process	Hydrogen flow	Hydrogen flow rate involved in producing vegetable oil
	Nitrogen flow	Nitrogen flow measurement for food preservation
Fuel cells	Air flow	Monitor the air flow to control the efficiency of fuel cell power plants
	Hydrogen flow	Monitor the hydrogen generated in the fuel cell process
Glass manufacturing	Combustion control	Monitor oxygen and natural gas flow to control burners for optional glass production
Heat treating	Air flow	Monitor air flow in heat treating furnaces to improve quality
Landfill gas	Methane, CO <sub>2</sub> mixture	Monitor gas to engines for electrical power
Leak detection	Low air flow rate	Measuring small amounts of air flow detects product flaws in many industries, including filter manufacturing
Metals recovery	Air flow rate	Air flow rate is critical in forming bubbles that capture metals otherwise not recoverable
Monitor natural gas consumption in industrial plants	Plant monitoring	Track billing meter, access daily flow peaks, determine demand for each shift
	Sub-metering	Monitor department usage, and analyze associated expenses
Natural gas distribution	Check meters	Natural gas distribution lines require check-meters to measure usage (downstream of gate valves)
Natural gas furnace	Natural gas consumption	Measure natural gas consumption in combustion furnaces
Natural gas odorizing	Scent control	Monitor argon and nitrogen flow rate involved in certain plastics production
Nitrogen blanketing	Tank blanketing	Measure the nitrogen flow layering over the contents of the tank to 'insulate' the product and increase safety, prevent tank corrosion
	Surface blanketing	Move product, such as pills, along a layer of nitrogen on a conveyer fluidized bed
Plastics molding	Nitrogen flow	Nitrogen flow rate controls the forming of plastic shapes such as gas tanks
Powder painting	Painting cars with robotics	Monitor air flow, including turbine air, atomizing air and shaping air to control automotive paint quality
Pulp and papers	Drying air flow	Improve product quality by monitoring drying air flow
Pump manufacturing	Air flow	Monitor air flow to test pumps for manufacturing quality control
	Nitrogen and argon plant metering	Monitor flow rate and consumption of nitrogen, argon and other technical gases in a plant's gas distribution system
	Nitrogen and argon sub-metering	Sub-meter for nitrogen, argon and other technical gases by department to determine cost savings
	Nitrogen, argon and hydrogen consumption	Totalize mass flow for customer billing

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<b>Location</b>	<b>Application</b>	<b>Measurement task</b>
Spray drying	Uniform air flow	Monitor air flow to uniformly dry components in pharmaceutical, food processing, fertilizer and chemical industries
Steel fabrication	Argon and nitrogen flow rate	Monitor air control argon and nitrogen flow rate for bottom stirring and purification
	Coke oven gas	Monitor the refined end product of the coke oven gas process
Pill coating in pharmacy	Monitor atomizing gas	Monitor the atomizing air or nitrogen flow rate in the pharmaceutical pill coating press
Testing hydrogen cooled turbines	Hydrogen leak detection	Measure air flow rate that is analyzed for hydrogen presence
Wastewater treatment	Aeration flow	Monitor and adjust the air flow bubbling into aeration tanks to control the critical dissolved oxygen level
	Digester gas	Monitor the flow of biogas mix in the digesters to facilitate the sewage treatment
	Biogas	Measure the excess gas for storage as backup fuel, and monitor emissions
	Odorizing	Monitor oxygen flow in odorizing (fragrancing) processes
Water purification	Oxygen monitoring	Monitor oxygen flow rate in ozone generator systems that purify municipal water supplies

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**ABB Measurement & Analytics**

For your local ABB contact, visit:  
**[www.abb.com/contacts](http://www.abb.com/contacts)**

For more product information, visit:  
**[www.abb.com/flow](http://www.abb.com/flow)**

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