



**FLEXIM captures
lost BTUs**

Chiller Plants

Heating Plants

HVAC

District Energy

Submetering

Energy Optimization

Energy Audits

Metering & Verification

FLUXUS[®] BTU

Precision Ultrasonic Flow and Thermal Energy Meters



www.flexim.com



FLUXUS® BTU

Non-Invasive Thermal Energy Metering



Energy Optimization

In times of rising energy prices and environmental regulations, controlling, balancing and monitoring the flow of thermal energy is of utmost importance. FLEXIM's thermal energy meter **FLUXUS® BTU** is up to the task.

Integrated System

FLEXIM's energy meter combines the attributes of non-intrusive ultrasonic flow measurement with superior temperature measurement into an integrated energy computer. All flow transducers and temperature sensors are connected to one unit. This eliminates errors associated with multiple devices and provides for a complete **turn-key solution** for your energy metering needs.

Traceable Certified Accuracy

Thermal energy meters are frequently used for billing and revenue allocation. Recognizing the need for traceable certified accuracy, FLEXIM delivers all its meters with a multi-point wet flow calibration and certificate. The installed accuracy of the meters is typically better than 1 %.

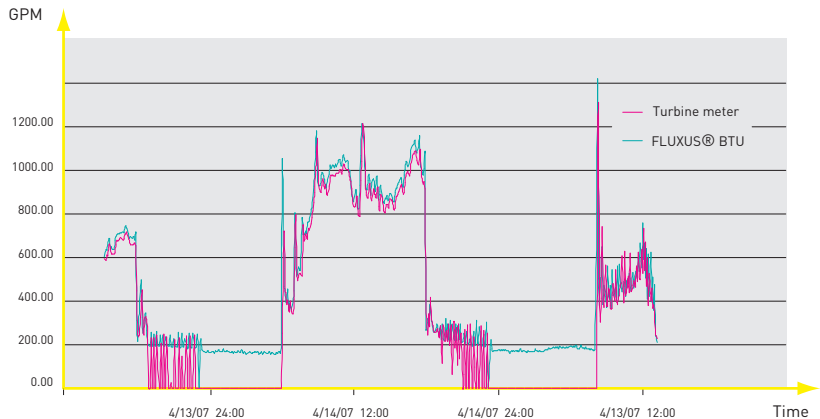
Temperature Accuracy

In applications with small temperature differentials such as chilled water applications, the temperature measurement accuracy is critically important. FLEXIM's temperature measurement system provides

a differential measurement uncertainty of better than 0.015 °C / 0.03 °F – and can be supplied with a traceable laboratory calibration certificate.

Unparalleled Turn-Down

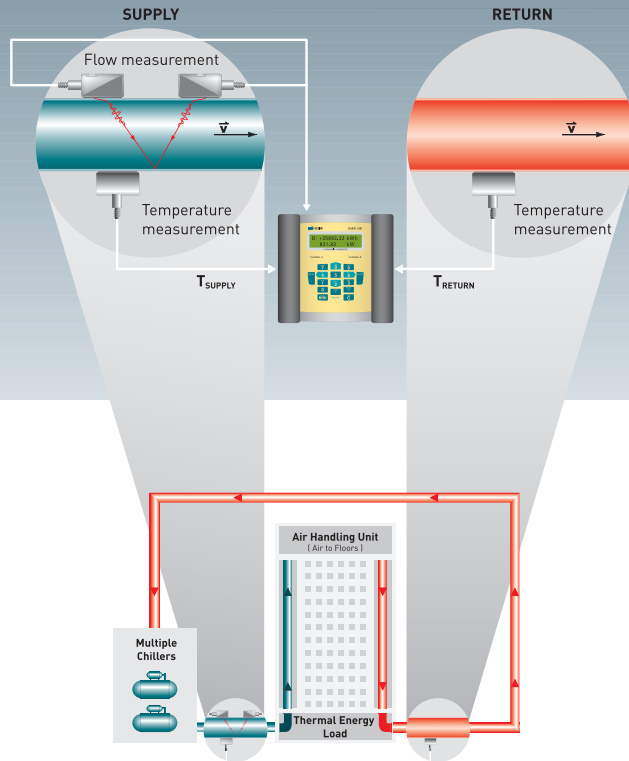
Typical HVAC applications run less than 8 hours at optimum peak flows while the remaining 16 hours are usually off-peak low flow beyond the threshold of other metering technologies. FLEXIM's unparalleled flow range and zero sensitivity allow the system to measure accurately the extremely low flow rates associated with trickle or low flow intervals. **No other flow-metering device can match FLEXIM's turndown and low flow capability.**



While a turbine meter drops out at night when the flow drops below 200 GPM (pink line), FLUXUS® BTU (blue line) still delivers a correct measuring value, thus avoiding revenue losses.



Measuring principle of FLUXUS BTU (here in a chiller plant)



Applications

Tasks:

District energy: operations, distribution and building loads

Monitor usage for billing

Metering and verification for LEED "green building" certification

Building Oversight Management Systems

Control operational efficiency

Load balancing

Markets:

HVAC

District energy

Chilled and hot water plants in college campuses, corporate complexes, government complexes, commercial buildings, malls, hospitals, sports arenas, etc.

Industrial cooling and heating

Geothermal installations

Industrial processes

Features and Advantages of FLEXIM's Ultrasonic Non-Intrusive Measurement

- Certified traceable accuracy of both flow and temperature measurements
- Extremely high turndown range, ability to measure low flow rates
- High accuracy of temperature measurement (4 wire clamp-on RTDs, 0.03 °F with matched RTDs)
- Drift-free
- No wear mechanism
- Permanent coupling pads (no grease) require ZERO maintenance
- Technical support and know-how
- High temp "maintenance free" capability for hot water lines with optional WaveInjector
- Large internal data logger; failsafe data retrieval in case of communication failure

Portable BTU meter F601 for a quick and reliable measurement without compromise.

FLEXIM's temperature sensors provide a differential measurement uncertainty of better than 0.015 °C / 0.03 °F – including a traceable laboratory calibration certificate.



FLUXUS® BTU

Technical Data

FLUXUS® BTU:	Fully integrated thermal energy metering system (ultrasonic clamp-on transit-time flow measurement; temperature measurement with clamp-on or insert temperature sensors)
Quantities of measurement:	Instantaneous thermal energy output, totalized thermal energy, volume and mass flow, temperature Ts, Tr, Td, flow velocity, liquid's sound speed, signal strength
Units:	BTU, tons, J, Wh, etc.
Flow velocity:	(0.01 to 80) ft/s
Resolution:	0.0008 ft/s
Repeatability:	0.15% of reading ± 0.03 ft/s
Accuracy, volume flow*:	with 7 points wet flow calibration: 1.2% of reading ± 0.03 ft/s with process calibration: 0.5% of reading ± 0.03 ft/s**
Temperature measurement:	Accuracy: 0.03F with matched RTDs Types: 100 Ohm / 1000 Ohm clamp-on and insert sensors Construction: 4-wire Platinum RTD
Integrated data logger:	>100 000 meas. values typically stores 2 months data at 15 min storage rate
Outputs types:	Analog: 4-20 mA, 0-10 V, pulse; Modbus, TCP/IP, RS485 (other protocols available)
Output data:	All quantities of measurement

* under reference conditions and with $v > 0.5$ ft/s
** if reference uncertainty better than 0.2%

For more information, see the corresponding technical specifications.

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