

THE SYSTEM

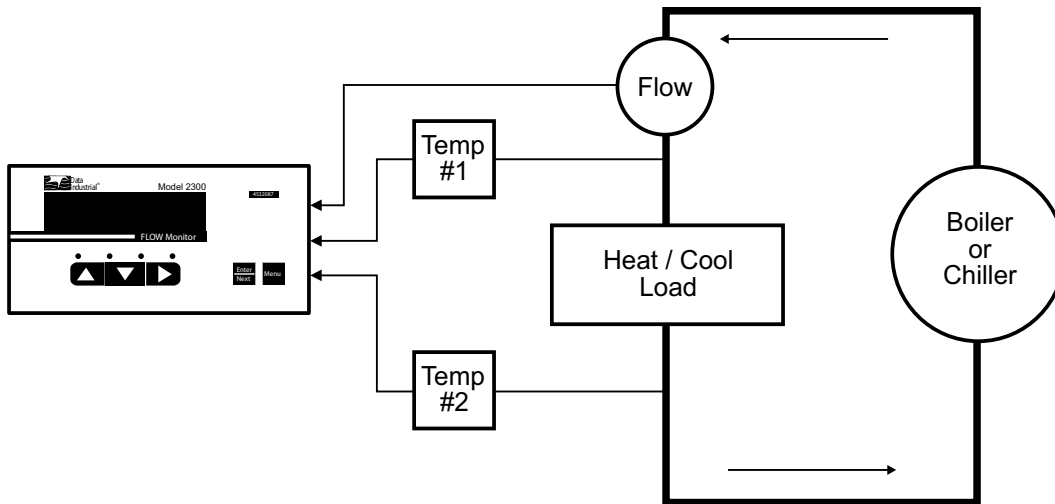
The Badger Meter Series 2300 Btu Meter monitors energy production or consumption in a circulation water loop by calculating the temperature difference between two temperature sensors and rate of flow from a Badger Meter impeller flow sensor.

Typically, a hot water boiler or chiller acts as the system's energy producer. The space in a building or a heat exchanger in some industrial process acts as the energy consumer. By placing the temperature sensors across the load as shown in the diagram, and measuring the flow in the loop, the BTu meter will measure the energy consumed. This will match the energy produced, less any system losses, and losses in the piping between the source and the load.

The Series 2300 Btu Meter features a powerful microprocessor based design. A Badger Meter, non-magnetic, impeller flow sensor provides a frequency pulse that is proportional to flow. Two temperature sensors provide the measurement of supply and return temperatures. Since our sensors measure flow as a volume (GPM), the T1 temperature measurement is used to make the conversion to the Mass measurement that is used the standard Btu equation $Q=KM(\Delta T)$
(Q= Energy Rate K= Specific Heat M= Mass
Delta T = T2-T1).

The Series 2300 displays two lines of information, such as flow rate, flow total, supply and return temperature, delta T, energy rate, and energy total. Up to two mechanical counters may be added to display total flow and total energy. The software is menu driven and allows for easy programming and calibration in the field. A password lock is also provided to limit access to the programmed settings. The Series 2300 accepts both thermistor and RTD temperature sensors. In addition to programmed units of measure the Series 2300 can be programmed by the user to display custom units.

Two expansion slots are available for an optional analog or digital input, analog outputs, or serial communications. Up to four optional relays may be added for control outputs. Relays may be assigned to set-point or totalizer functions and may be programmed as flow or energy counters, flow, energy, or temperature alarms, or to stage equipment.



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