



## FEATURES

**Simple Installation and Commissioning** - Factory programmed and ready for use upon delivery.

**Single Source Responsibility** - One manufacturer is responsible for every aspect of the energy measurement process, ensuring component compatibility and overall system accuracy.

**N.I.S.T.\* Traceable Calibration with Certificate** - Each Btu measurement system is individually calibrated using application specific flow and temperature data and is provided with a calibration certificate.

**Precision Solid-State Temperature Sensors** - Integral sensors are custom calibrated and matched to an accuracy better than  $\pm 0.15^\circ \text{F}$  over the calibrated range.

**Highly Accurate Integral Flow Meter** - Built-in turbine flow meter is accurate to within  $\pm 0.5\%$  of reading at the calibrated flow rate and within  $\pm 2\%$  of reading over an extended range (0.8 - 38 gpm.)

**Complete Installation Package** - Mechanical installation hardware, sensor cable and installation instructions are provided to ensure error-free installation and optimal performance.

**Serial Network Communications** - Optional communications interface provides complete energy, flow and temperature data to the control system through a single network connection, reducing installation costs.

\*National Institute of Standards and Technology

## DESCRIPTION

The System-30 provides highly accurate thermal energy measurement in chilled water, hot water and condenser water systems based on signal inputs from two integral, matched temperature sensors and an integral ONICON inline turbine meter. This compact system is designed to provide totalized energy for flow rates from 0.8 to 38 gpm. The totalized output is available as a solid state dry contact closure. Each System-30 is factory calibrated and comes complete with all installation hardware.

## APPLICATIONS

Chilled water, hot water and condenser water systems for:

- Commercial office tenant billing
- Residential apartment and condominium tenant billing

## ORDERING INFORMATION

The System-30 is sold complete with integral flow meter, temperature sensors and (1) standard thermowell. Please refer to the ONICON catalog for available options.



Process connections are available with sweat union or threaded connections.

# SYSTEM-30 BTU MEASUREMENT SYSTEM SPECIFICATIONS



## CALIBRATION USING N.I.S.T.\* TRACEABLE STANDARDS

Flow and temperature sensors are individually calibrated using customer supplied data, and followed by a complete system calibration. Field commissioning is also available.

## ACCURACY

### Flow

- ±0.5% of reading at calibrated velocity
- ±1.0% of reading from 5.7 to 38 gpm (0.36 to 2.4 l/s)
- ±2.0% of reading from 0.8 to 38 gpm (0.05 to 2.4 l/s)

### Differential Temperature Accuracy

- ±0.15° F (0.083° C) over calibrated temperature range

### Computational Error

- ±0.05%

## OUTPUT SIGNALS

Isolated solid state dry contacts for mode 1 and mode 2 energy total

Contact rating: 100 mA, 50 V

Contact duration: 0.5, 1, 2 or 6 sec selectable

## OPTIONAL OUTPUT SIGNALS

- (1) Isolated analog output, factory selectable for flow rate, energy rate or delta-T  
(Available as 4-20 mA, 0-10 V or 0-5 V signal)

OR

Serial connections for BACnet MS/TP, MODBUS, LONWORKS, JCI-N2 or Siemens P1 operating protocols (Contact ONICON for availability of other protocols.)

## OPTIONAL LOCAL DISPLAY

Alphanumeric LCD displays total energy, total flow, energy rate, flow rate, supply temperature and return temperature

Alpha: 16 characters, 0.2" high

Numeric: 6 digit, 0.4" high

## PROGRAMMING

Application specific factory programming

Non-volatile memory stores program and totalized values in the event of a power failure

## OPERATING TEMPERATURE & PRESSURE

Liquid temperature range: 32° F to 200° F (0° C to 93.3° C)

Ambient operating temperature range: 40° F to 120° F (4.4° C to 48.9° C)

Maximum operating pressure: 400 psi (28.1 kg/cm<sup>2</sup>)

Maximum pressure drop: 3 psi @ 38 gpm (0.21 kg/cm<sup>2</sup> @ 2.4 l/s)

## MECHANICAL

### Materials

Btu meter: Brass inline body, aluminum electronics enclosure

Thermowell: Brass

### Process Connections

Threaded or sweat union fittings  
3/4" or 1"

### Overall Dimensions

9.25" L x 5" W x 6.5" H

### Weight

6 lbs (2.7 kg) with threaded process connections

## ELECTRICAL

### Input Voltage

24 V ±10% AC 50/60 Hz or

24 V ±4 DC

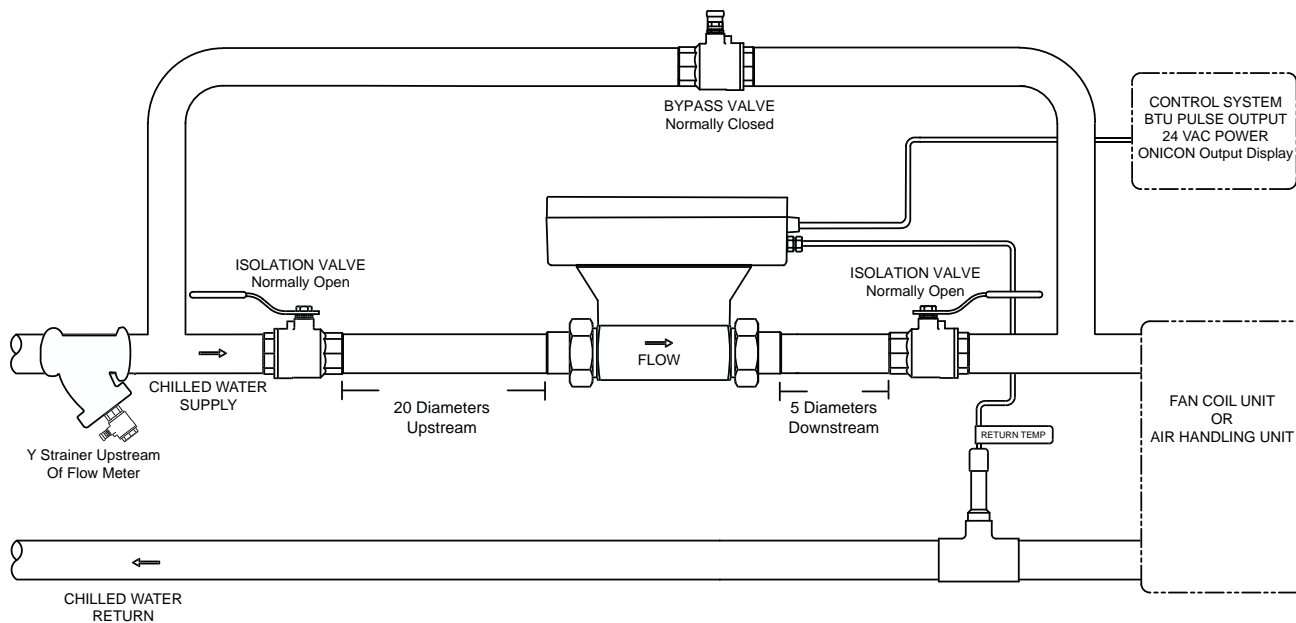
### Maximum Operating Current

200 mA

NOTE: Specifications are subject to change without notice.

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## TYPICAL SYSTEM-30 INSTALLATION (Meter may be installed in supply or return)



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