DESCRIPTION

The System-10 BTU Meter provides highly accurate thermal energy measurement in chilled water, hot water and condenser water systems based on signal inputs from two matched temperature sensors (included) and any of ONICON’s insertion or inline flow meters (ordered separately). The basic model provides a local indication of energy, flow and temperature data through an alphanumeric display. An isolated solid state dry contact is provided for energy total. Optional analog outputs and network communications are also available.

APPLICATIONS

Chilled water, hot water and condenser water systems for:
- Commercial office tenant billing
- Central plant monitoring
- University campus monitoring
- Institutional energy cost allocation
- Performance/efficiency evaluations
- Performance contracting energy monitoring

ORDERING INFORMATION

The System-10 BTU Meter is sold complete with temperature sensors. Thermowell installation kits and flow meters are purchased separately.

<table>
<thead>
<tr>
<th>ITEM #</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSTEM-10</td>
<td>System-10 BTU Meter</td>
</tr>
<tr>
<td>SYSTEM-10-OPT8</td>
<td>High temperature sensors (over 200°F)</td>
</tr>
<tr>
<td>SYSTEM-10-OPT9</td>
<td>Add one analog output</td>
</tr>
<tr>
<td>SYSTEM-10-OPT10</td>
<td>Add four analog outputs</td>
</tr>
</tbody>
</table>

Choose from the following commonly used thermowell installation kits:

| SYSTEM-10-OPT4 | Upgrade to outdoor thermowells (pair)          |
| BTU-ST-INSTL32 | Brass kit for welded steel pipe (1" - 5")     |
| BTU-ST-INSTL52 | Brass kit for threaded steel pipe (1/4" - 2½")|
| BTU-ST-INSTL34 | SS kit for welded steel pipe (1/4" and up)    |
| BTU-ST-INSTL36 | Brass kit for copper tube (1½" - 2")          |
| BTU-ST-INSTL37 | Brass kit for copper tube (2½" - 3")          |

Choose from the following flow meters:

| F-1100/F-1200 | Insertion Turbine Flow Meter (1½" - 72")       |
| F-1300        | Inline Turbine Flow Meter (1½" - 1")           |
| F-3000 Series | Inline Electromagnetic Flow Meter (1/4" - 48") |
| F-3500        | Insertion Electromagnetic Flow Meter (3" - 72")|
| F-4200        | Clamp-on Ultrasonic Flow Meter (1/4" - 48")    |
| F-2000 Series | Inline Vortex Flow Meter (1½" - 12")           |

Refer to catalog for flow meter installation kits. Consult with ONICON for additional thermowell installation kit and flow meter options.
SYSTEM-10 BTU METER SPECIFICATIONS

**CALIBRATION**
Flow meters and temperature sensors are individually calibrated followed by a complete system calibration. Field commissioning is also available.

**ACCURACY**
Differential temperature accuracy ±0.15°F over calibrated range
Computing nonlinearity within ±0.05%

**PROGRAMMING**
Factory programmed for specific application
Field programmable via front panel interface

**MEMORY**
Non-volatile EEPROM memory retains all program parameters and totalized values in the event of power loss.

**DISPLAY**
Alphanumeric LCD displays total energy, total flow, energy rate, flow rate, supply temperature and return temperature.
Alpha: 16 character, 0.2” high; Numeric: 8 digit, 0.4” high

**OUTPUT SIGNALS**
Standard:
- Isolated solid state dry contact for energy total:
  - Contact rating: 100 mA, 50 V
  - Contact duration: 0.5, 1, 2, or 6 sec
- Analog Output(s) (4-20 mA, 0-10 V or 0-5 V):
  - One or four analog output(s) available for flow rate, energy rate, supply/return temps, or delta-T.

Optional:
- Analog Output(s) (4-20 mA, 0-10 V or 0-5 V):
  - One or four analog output(s) available for flow rate, energy rate, supply/return temps, or delta-T.

Serial Communications:
- BACnet IP or MS/TP
- LONWORKS - TP/FT-10F
- Siemens Apogee - P1
- Johnson Controls Metasys - N2
- MODBUS RTU RS485 or TCP/IP

**TEMPERATURE RANGE**
- Standard liquid temperature range: 32°F to 200°F
- Optional extended temperature ranges available.
- Ambient temperature range: -20°F to 140°F

**TEMPERATURE SENSOR**
Solid state sensors are custom calibrated using N.I.S.T. traceable temperature standards.
Current based signal (mA) is unaffected by wire length.

**TEMPERATURE SENSORS**
Solid state sensors are custom calibrated using N.I.S.T. traceable temperature standards.
Current based signal (mA) is unaffected by wire length.

**TYPICAL SYSTEM-10 INSTALLATION**

Insertion turbine flow meter shown.
Any ONICON flow meter may be used with the System-10 BTU Meter. Consult with ONICON for additional flow meter types.