NEW!
FLOW
6
more options available on kele.com

**DESCRIPTION**

The Dynasonics DE Series ultrasonic energy meter and DB Series ultrasonic flow meter attach externally to water distribution piping to measure flow rate and (the DE Series) supply/return temperature difference to calculate energy consumption. Since they are non-invasive, they add no pressure head loss to the system and can be installed on existing piping systems without shutdown or interruption. Installation is easy and fast, there are no moving parts, and they measure bi-directional flow. The DE energy meter measures energy usage in BTU, MBTU, MMBTU, Tons, kJ, kW, MW and is perfect for retrofit of existing hot water or chilled water hydronic systems. Network communication models include Modbus RTU over RS485, Modbus TCP/IP and Ethernet communication includes BACNet®/IP, EtherNet/IP® protocols.

The DE and DB meters have a backlit display (available with or without a keypad interface), a USB port for programming, and integral or remote clamp-on flow transducer configurations. The DE Series uses strap-on RTD temperature sensors (immersion sensors are also available). The DE and DB meters work with pipe sizes 1/2" and up, are available in 24 VAC, 120 VAC, or 24 VDC power, and have a 4-20 mA analog output for flow rate and a pulse output for totalizing. Free ULTRALINK™ software is used to configure the meters.

**FEATURES**

- Backlit display for easy reading in low light
- USB Port for configuration and monitoring
- No fluid contact means no fluid compatibility issues, no pressure drop, and no plant shutdown necessary for installation
- Bi-directional flow measurement for reversing flow systems

**SPECIFICATIONS**

- **Supply Voltage**: 95-264 VAC, 47-63 Hz @ 17 VA
  20-28 VAC, 47-63 Hz @ 8.4 VA
  10-28 VDC @ 200 mA
- **Accuracy**
  - Flow: ± 1.0% of reading above 1 fps (0.3 mps) velocity, ± 0.01% of reading below 1 fps (0.3 mps)
  - Temperature (DE only): ± 0.45°F (0.25°C), NIST certification included
  - DE: 4-20 mA @ 400Ω internal power, can span negative-to-positive flow/energy rates
  - DB: 4-20 mA @ 400Ω internal power, can span negative-to-positive flow/energy rates; two 0-1,000 Hz open collector transistors that can be configured for flow rate, alarming or totalizing
- **Signal Output**
  - DTTS small transducers: 2 MHz
  - DTTN remote transducers: 1 MHz
  - DTTL large pipe transducers: 500 kHz
- **Frequency**
  - Repeatability: 0.5% of reading
  - Sensitivity: Flow: 0.001 fps (0.003 mps)
  - Temperature: ± 0.05°F (.025°C)
- **Velocity Range**
  - 0.1 to 40 fps (feet/second), 0.03 to 12.4 mps (meters/second), bi-directional
- **Wiring**
  - Transducer cables: RG59 coaxial 75Ω or Twinaxial 78Ω, (optional armored conduit), maximum length 990' (300 m) in 10' (3m) increments
  - RTDs (DE meters only): Platinum 385, 1 kΩ, 3-wire PVC jacket cable
  - Conduit Opening: Two 1/2” FNPT and one 3/4” FNPT
  - Remote transducer models available with 20' (6.1m), 50' (15m), or 100' (30m) cables
- **Communication**
  - USB 2.0 for connection to PC running ULTRALINK™ configuration software
  - RS485: Modbus RTU command set, ENERGYLINK network monitoring software 10/100 Base-T RJ45
- **Configuration**
  - PC running free ULTRALINK™ software or via integral display keypad (limited access to parameters)
- **Display**
  - Two-line LCD, LED backlit, top row: 0.7” (1.8 cm) height, 7-segment; bottom row: .35” (0.9 cm) height, 14-segment; flow rate and totalization indication
- **Engineering Units**
  - DB: flow rate in gallons, cubic feet, million gallons, barrels, acre-feet, lbs., meters, cubic meters, liters, million liters, kg.
  - DE: flow rates above plus BTU, MBTU, MMBTU, Tons, kJ, kW, MW 1/2” (1.2 cm) and larger
- **Pipe Size Range**
  - Media Compatibility
    - Most clean liquids or liquids with some suspended solids or aeration; get factory approval for glycol applications
- **Materials Of Construction**
- **Operating Temperature**
  - -40° to 185°F (-40° to 85°C); remote DTTS/DTTN transducers have upper limit of 250°F (121°C) and high temperature DTTTH have upper limit of 400°F (200°C)
- **Enclosure Rating**
  - CSA C22.2 No. 61010-1 (24 VDC, 120 VAC only); CE EN61326-1:2006
- **Warranty**
  - 1 year
FLOW

ULTRASONIC ENERGY METER, FLOW METER
DE/DB SERIES

INSTALLATION (DE MODEL SHOWN; DB DOES NOT HAVE TEMPERATURE TRANSDUCERS)

DIMENSIONS AND FLOW RANGES

Mechanical Dimensions: Inches (MM)
Remote System

Wall mount 6.50 (165.1)
Pipe mount 2.90 (73.7)

Integral System

DTTTS/DTTN Transducer Dimensions: Inches (MM)

<table>
<thead>
<tr>
<th>Pipe Size</th>
<th>Pipe Material</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>Measuring Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANSI/DN</td>
<td>2.46 (62.5)</td>
<td>2.36 (60.3)</td>
<td>2.50 (63.5)</td>
<td>3.56 (89.3)</td>
<td>0.75 (19.0)</td>
<td>2.5 - 45 GPM</td>
</tr>
<tr>
<td>Copper</td>
<td>2.46 (62.5)</td>
<td>2.36 (60.3)</td>
<td>3.33 (84.6)</td>
<td>1.05 (26.7)</td>
<td>1.0 (25.4)</td>
<td>2.75 - 66 LPM</td>
</tr>
<tr>
<td>½&quot;</td>
<td>2.46 (62.5)</td>
<td>2.12 (53.8)</td>
<td>2.12 (53.8)</td>
<td>3.56 (89.3)</td>
<td>0.75 (19.0)</td>
<td>2.5 - 45 GPM</td>
</tr>
<tr>
<td>Copper</td>
<td>2.46 (62.5)</td>
<td>2.12 (53.8)</td>
<td>3.00 (76.2)</td>
<td>0.75 (19.0)</td>
<td>1.0 (25.4)</td>
<td>2.75 - 66 LPM</td>
</tr>
<tr>
<td>¾&quot;</td>
<td>2.46 (62.5)</td>
<td>2.12 (53.8)</td>
<td>3.40 (86.4)</td>
<td>1.90 (48.2)</td>
<td>2.0 (50.8)</td>
<td>6 - 144 LPM</td>
</tr>
<tr>
<td>Copper</td>
<td>2.46 (62.5)</td>
<td>2.12 (53.8)</td>
<td>3.29 (83.2)</td>
<td>1.90 (48.2)</td>
<td>2.0 (50.8)</td>
<td>6 - 144 LPM</td>
</tr>
<tr>
<td>1&quot;</td>
<td>2.46 (62.5)</td>
<td>2.12 (53.8)</td>
<td>3.29 (83.2)</td>
<td>1.90 (48.2)</td>
<td>2.0 (50.8)</td>
<td>6 - 144 LPM</td>
</tr>
<tr>
<td>Copper</td>
<td>2.46 (62.5)</td>
<td>2.12 (53.8)</td>
<td>3.40 (86.4)</td>
<td>1.90 (48.2)</td>
<td>2.0 (50.8)</td>
<td>6 - 144 LPM</td>
</tr>
<tr>
<td>1-½&quot;</td>
<td>2.46 (62.5)</td>
<td>2.12 (53.8)</td>
<td>3.40 (86.4)</td>
<td>1.90 (48.2)</td>
<td>2.0 (50.8)</td>
<td>6 - 144 LPM</td>
</tr>
<tr>
<td>Copper</td>
<td>2.46 (62.5)</td>
<td>2.12 (53.8)</td>
<td>3.40 (86.4)</td>
<td>1.90 (48.2)</td>
<td>2.0 (50.8)</td>
<td>6 - 144 LPM</td>
</tr>
<tr>
<td>2&quot;</td>
<td>2.46 (62.5)</td>
<td>2.12 (53.8)</td>
<td>3.40 (86.4)</td>
<td>1.90 (48.2)</td>
<td>2.0 (50.8)</td>
<td>6 - 144 LPM</td>
</tr>
<tr>
<td>Copper</td>
<td>2.46 (62.5)</td>
<td>2.12 (53.8)</td>
<td>3.40 (86.4)</td>
<td>1.90 (48.2)</td>
<td>2.0 (50.8)</td>
<td>6 - 144 LPM</td>
</tr>
</tbody>
</table>

* Varies due to U-bolt configuration
ULTRASONIC ENERGY METER, FLOW METER
DE/DB SERIES

POWER WIRING FOR 24 VAC

![Power Wiring Diagram for 24 VAC](image)

POWER WIRING FOR 120 VAC

![Power Wiring Diagram for 120 VAC](image)

COMMUNICATIONS WIRING (MODEL SPECIFIC)

![Communications Wiring Diagram](image)

POWER WIRING FOR 24 VDC

![Power Wiring Diagram for 24 VDC](image)

TEMPERATURE SENSOR WIRING

![Temperature Sensor Wiring Diagram](image)

4-20 mA OUTPUT WIRING

![4-20 mA Output Wiring Diagram](image)

*Loop resistance maximum = 400 ohms for AC powered units or (supply voltage − 7 VDC)×0.02 for DC powered units.
## ORDERING INFORMATION

<table>
<thead>
<tr>
<th>MODEL</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE</td>
<td>BTU Meter</td>
</tr>
<tr>
<td>DB</td>
<td>Flowmeter</td>
</tr>
</tbody>
</table>

**PIPE SIZE**
- IA: 1/2” ANSI pipe
- ID: 3/4” ANSI pipe
- IE: 1” ANSI pipe
- IG: 1/2” copper
- IH: 3/4” copper
- II: 1” copper
- IJ: 1 1/4” copper
- IK: 1 1/2” copper
- IL: 2” copper
- IM: 1/2” OD tubing
- IN: 3/4” OD tubing
- IP: 1” OD tubing
- IQ: 1 1/4” OD tubing
- IR: 1 1/2” OD tubing
- IS: 2” OD tubing

**REMOTE FLOW TRANSUCERS**
- D005-0803-104: UltraLink PC software for DE/DB Meters (required accessory)
- D005-2117-003: USB A/B Cable, 10 ft. (3 m) for DE/DB Series Meters (required accessory)
- D005-2117-004: USB A/B Cable, 15 ft. (4.6 m) for DE/DB Series Meters
- D002-2007-005: 72” stainless steel straps, 1 pair, for DTN/DTTH, for pipes up to 20”
- D005-0350-300: RTD Connector Kit (required for non-standard sensors)
- D010-2102-010: Mounting track assembly for DTTN/DTTH transducers, for <10” pipes
- D010-2102-016: Mounting track assembly for DTTN/DTTH transducers, for 10” to 16” pipes
- D010-3000-120: RTD kit for DE Energy Meter, strap-on, 20 ft. cables
- D010-3000-121: RTD kit for DE Energy Meter, strap-on, 50 ft. cables
- D010-3000-122: RTD kit for DE Energy Meter, strap-on, 100 ft. cables

### DTTS
- Remote transducer for 1/2” to 2” pipes
- PIPE SIZE
  - D: 1/2”
  - F: 3/4”
  - G: 1”
  - J: 1 1/4”
  - L: 2”
- PIPE TYPE
  - P: ANSI carbon steel
  - T: Copper
- CABLE LENGTH
  - 020: 20 feet (6.1 m)
  - 050: 50 feet (15 m)
  - 100: 100 feet (30 m)
- CABLE ARMOR OPTION
  - N: No armor
  - A: Flexible armor
- CABLE ARMOR LENGTH
  - 020: 20 feet (6.1 m)
  - 050: 50 feet (15 m)
  - 100: 100 feet (30 m)

### DTTH
- High temperature transducer for 1/2” to 2” pipes
- PIPE SIZE
  - D: 1/2”
  - F: 3/4”
  - G: 1”
  - J: 1 1/4”
  - L: 2”
- PIPE TYPE
  - P: ANSI carbon steel
  - T: Copper
- CABLE LENGTH
  - 020: 20 feet (6.1 m)
  - 050: 50 feet (15 m)
  - 100: 100 feet (30 m)
- CABLE ARMOR OPTION
  - N: No armor
  - A: Flexible armor
- CABLE ARMOR LENGTH
  - 020: 20 feet (6.1 m)
  - 050: 50 feet (15 m)
  - 100: 100 feet (30 m)

**ACCESSORIES**

- D005-0803-104: UltraLink PC software for DE/DB Meters (required accessory)
- D005-2117-003: USB A/B Cable, 10 ft. (3 m) for DE/DB Series Meters (required accessory)
- D005-2117-004: USB A/B Cable, 15 ft. (4.6 m) for DE/DB Series Meters
- D002-2007-005: 72” stainless steel straps, 1 pair, for DTN/DTTH, for pipes up to 20”
- D005-0350-300: RTD Connector Kit (required for non-standard sensors)
- D010-2102-010: Mounting track assembly for DTTN/DTTH transducers, for <10” pipes
- D010-2102-016: Mounting track assembly for DTTN/DTTH transducers, for 10” to 16” pipes
- D010-3000-120: RTD kit for DE Energy Meter, strap-on, 20 ft. cables
- D010-3000-121: RTD kit for DE Energy Meter, strap-on, 50 ft. cables
- D010-3000-122: RTD kit for DE Energy Meter, strap-on, 100 ft. cables

---

Note: Shaded selections are special order. DT remote transducers come with 36” straps that fit pipes up to 10”. (P/N D002-2007-001)