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Installation and Setup - PowerCost Monitor™

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BLI-28000 Features and Specifications

- Measure real time energy use and costs – home wide consumption. Settings for KWH and $
- Appliance function. Zero out base consumption and measure how much energy and $ are contributed by specific appliances and actions.
- Predictive function. Based on current usage estimate next months energy use and $ (1 hour data required)
- Track cumulative information. Reset the data as frequently as you wish – hourly, daily, weekly, monthly, etc.

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- BLI-28000 Features and Specifications
- Flexible programming to match local utility rate structure.
  - Flat rate
  - Multi tier
  - On/off peak
  - Time of use rates
- Displays time and outside temperature at meter – F or C
- Sensor passively attaches to the outside meter – no interference – no electrician required. Designed for self install but can be installed by technicians with added tutorials and training for the home owner
- Product ships with 4 AA batteries

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BLI-28000 Features and Specifications

- KH factor – 0.1 to 99 (This is the scaling factor that is written on all meters. Sometimes referred to as Kt or Kc, but this scaling factor is always present and typically 1.0 for digital meters and 7.2 for EMM meters
- Sleep function – prevents battery run down should monitor and sensor lose connectivity
- Appliance Feature – zero out the top line total and next update shows change in specific appliance (up or down reported as positive number)
- Predictive Feature – 30 view based on current cumulative total

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Meter Compatibility

- Estimated to be compatible with 90% of meters in North America. Varies regionally and by local utility (Specific meter types detailed in subsequent sections)
- Designed for residential application – single unit homes.
- Apartment Complexes, town/row houses, Condo's, MDU's (Multi Dwelling Units) etc. often have meter locations that exceed the 100 foot range specification
- Only 1 sensor can be deployed in ~10 foot radius, i.e. cannot deploy 2+ sensors in same closet or meter bank due to RF interference (Neighboring houses are acceptable)
- Each wall and/or floor of a house attenuates/decreases the perceived range by 10'-15'.
- Example: The meter (sensor) and display are separated by ~50' line of sight distance, 2 walls and 1 floor; will the communication be maintained?
- Answer: 50(L.O.S) + 2(15' Walls) + 1(15 Floor) = 95'
- This should not pose an issue, however it is at the outer limits of the range. Moving the Display closer will ensure communication maintained.

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Meter Compatibility

- Compatible with AMR, AMI, “Smart Meters”
- The use of the term Smart Meter varies widely by location and the person using it; the PowerCost Monitor is compatible with Smart meters with some exceptions that will be described in more detail in this document
- Sensor collar designed for circular meters, standard in North America
- Compatible with analog (electromechanical discs) and digital meters
- Conceptually if the sensor can “see” the disc or the optical port then high potential for compatibility

Meter Compatibility

- The Sensor has 2 LEDs that either emit an infrared (ir) pulse or detects an ir pulse
- When the spinning disk and black mark is visible, the Sensor LED emitter will send out a pulse that needs to be aligned with the disk/mark.
- The Detector receives the reflected signal off the disk and when the black mark passes the strength of the reflected pulse changes; this is recorded as a revolution of the disk
- The maximum distance from the meter glass dome to the actual disk should not exceed ~1 inch since the reflected signal when the disk is greater than 1 inch may be too weak for the Detector to register.

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- The following sections go through type by type, meter by meter, compatibility issues and why each is supported or not
- If the meter you are deploying to is not detailed, please contact Blue Line tech support head office for confirmation. (support@bluelineinnovations.com)

Examples - Compatible

Type 1: Disk meter with black mark clearly visible

Common manufacturers': GE, Landis & Gyr, Sangamo, Schlumberger, Itron, Elster, Westinghouse, ABB

Examples - Compatible

- Arm is defaulted in this configuration out of the box
- Red light should flash once per revolution of the disk/mark
- If a plate is covering the disk, then alignment not possible
- Kh value listed on meter
- If “Mult x” listed on meter, then the Kh needs to be adjusted by that multiplying factor. Ex. Kh = 3.6 with Multx10 Therefore Kh entered in Display is 36.6.

Examples - Compatible

Sensor correctly installed on Disk Meter

Compatible – GE I-210

Type 2: Digital Meter with IR port 1.5 inches or more from edge.

Manufacturer: GE

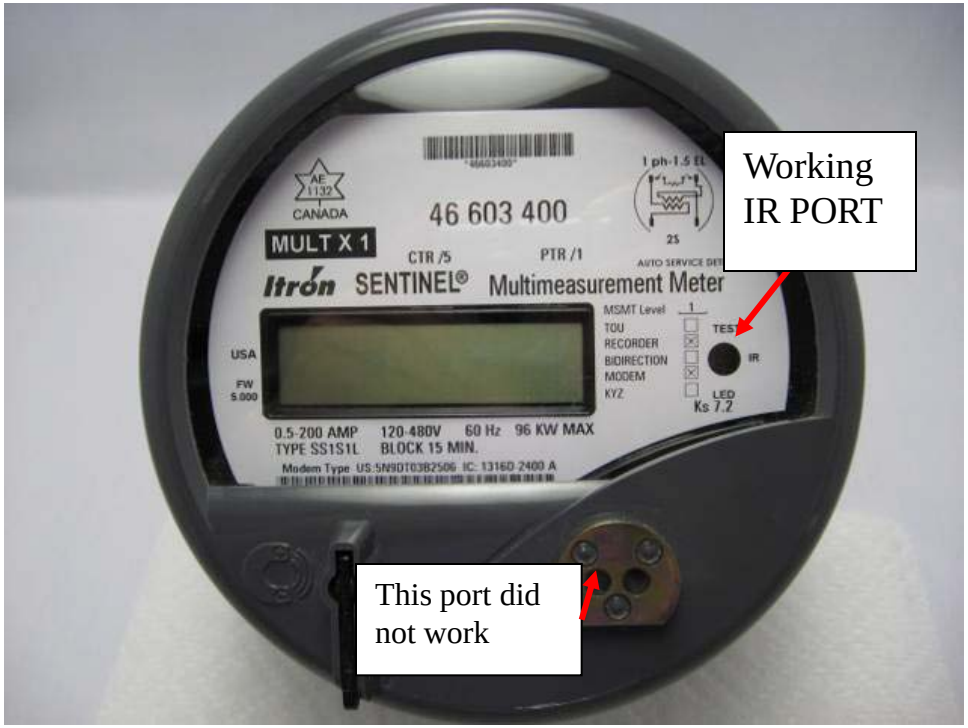
Model: I-210 and I-210 +

Align the innermost port

Compatible – Itron Sentinel SS1S1L

Manufacturer: Itron

Model: SS1S1L



Compatible – Ester REX/R1S

Type 3: Digital Meter with IR port less than 1.5 inches from outer edge.

Manufacturer: Elster

Model(s): R1S/REX

Align the innermost (left) port

Compatible – Ester REX2

Manufacturer: Elster

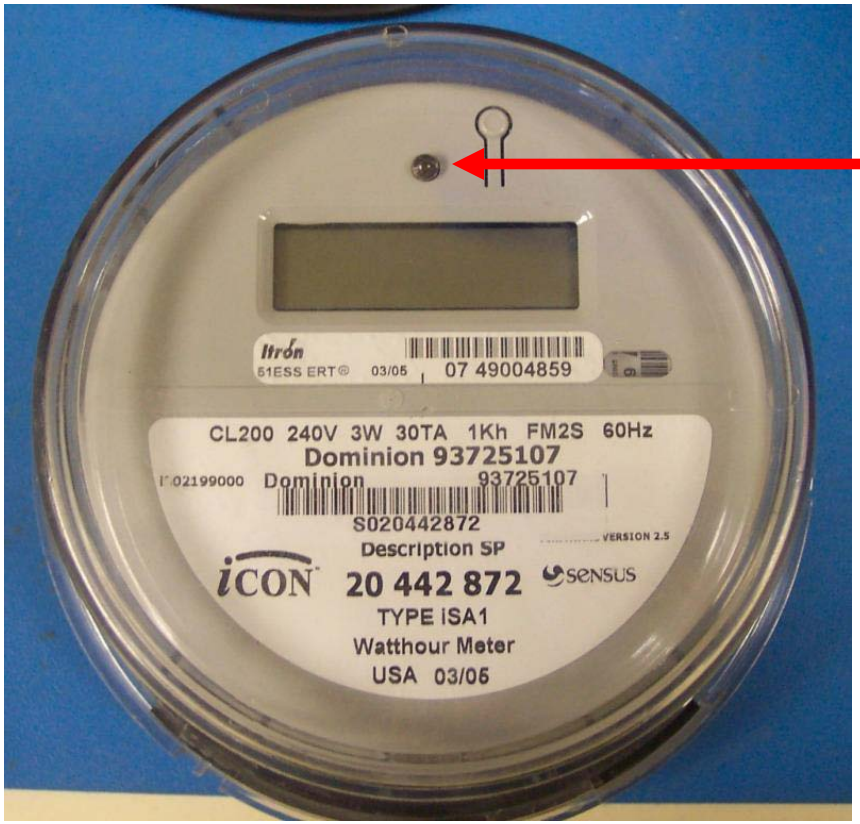
Model(s): REX2

Align the outermost (left) port

Compatible – Sensus iCon

Manufacturer: Sensus

Model(s): iCon iSA1



IR Port

Compatible – Centron C1S

Type 4: Digital Meter with IR port on top

Manufacturer: Itron and Schlumberger

Model(s): C1S/C1R

Compatible – Echelon

Type 2: Digital Meter with IR port 1.5 inches or more from edge.

Manufacturer: Echelon

Model(s): Type E2L – Model 83020-2680A – EM50202 - NES

IR Port

Unsupported - FOCUS

Landis & Gyr FOCUS/ALF meter.

(Trilliant Radio often installed)

No infrared (ir) pulse for the sensor to pickup

Unsupported – Plate Cover

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Standard Disk meter with AMR plate covering disk.

No location for the sensor to be installed

Unsupported – ABB A1T

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ABB A1T Does not transmit the Watt pulse

ANSI (Silver raised port) does not output IR pulse

No Pulse Emitted!

Unsupported - ELSTER A1R+

Elster A1R+ Does not transmit the Watt pulse

ANSI (Silver raised port) does not output IR pulse

No Pulse Emitted!

Unsupported - ELSTER Type A3TL

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Elster A3TL Does not transmit the Watt pulse

ANSI (Silver raised port) does not output IR pulse

No Pulse Emitted!

Unsupported MT200/100 Hybrid

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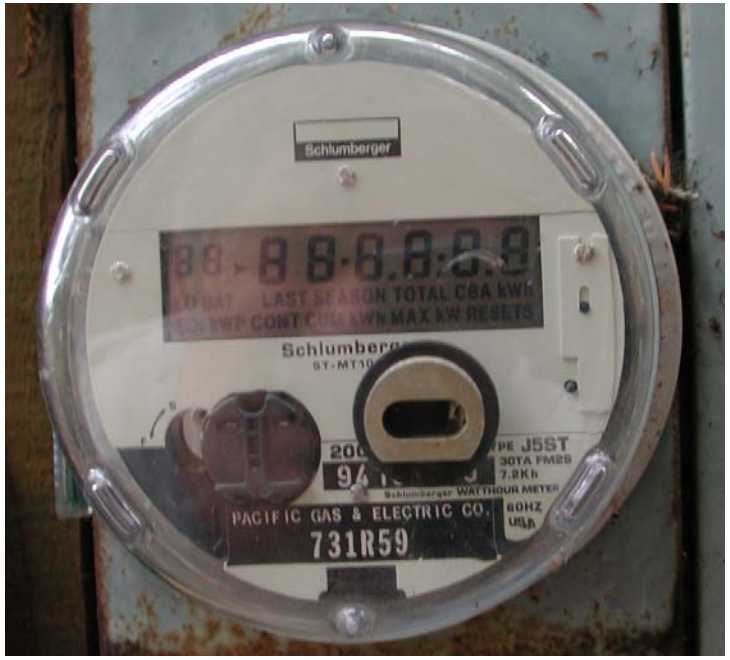
Schlumberger MT200/100 Does not transmit the Watt pulse

ANSI (Silver raised port) does not output IR pulse



Installation Tips

- Have rates pre-loaded in Display before arriving at house
- Can leave the batteries in display even in not connected (Sleep mode will protect battery strength)
- Do not install batteries in sensor until meter installation as this can drain batteries
- Cordless screwdriver will save a lot of time!
- Have multiple units ready when installing
- Sensors and Display are interchangeable so if struggling installing or connecting 1 set, swap a sensor or display to achieve complete system install.
- If a unit does not work at one location, try a new unit. Then ensure the unit that did not work at that location is tried at another location
- Always have a “test” or “benchmark” meter that you know is working and easy to install on to test units that may not work in the field.

Installation Tips

- Ensure a high load appliance is turned high to make the disk spin faster or the digital meter output is high
- If the red light does not begin to flash within the first 30-60 seconds, press the reset button again to start the search cycle over
- Are there any wireless weather stations or wireless thermometers installed? (If yes they will interfere and all batteries should be removed from other device to ensure PowerCost Monitor works)
- Based on house construction, find the most convenient place to locate the display while still being inside the range restrictions

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Two Components:

Sensor unit that passively attaches to the electric meter sends info wirelessly to:

Portable Monitor, which shows real time energy cost in dollars and cents

See Install and User Guides in Package

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The **Power** of Real Time Information