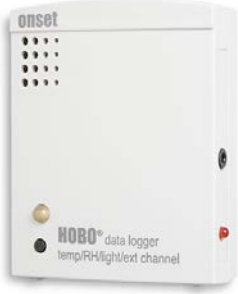















The selection of tools for this kit has been built upon our experiences with students and feedback from Energy Auditor professionals. It is by no means a complete auditing kit but is comprehensive enough to accurately measure, verify and demonstrate energy movement within buildings.

The Energy Management Toolkit		Street price is approximate as of July 2012. Onset does provide volume discounts.
<p>HOBO U12 4-Channel External Data Logger - U12-006 The HOBO U12-006 accepts a wide range of energy and environmental sensors. It provides 12-bit resolution measurements for detecting greater variability in recorded data, and stores 43,000 measurements.</p> <p>The Energy Logger allows you to measure and record: The U12-006 Data Logger supports the following measurements (some sensors sold separately): Temperature, 4-20mA, AC Current, AC Voltage, Air Velocity, Carbon Dioxide, Compressed Air Flow, DC Current, DC Voltage, Gauge Pressure, Kilowatts (kW), Volatile Organic Compound</p>	<p>\$108</p>	
<p>HOBOWare PRO Software (BHW-PRO-CD)</p> <p>HOBOWare for Windows and Mac OSX supports all HOBO U-Series loggers, including HOBO Water Level and HOBO Pendant loggers; HOBOWare Pro includes Post-Processing Assistants, for Growing Degree Days and Grains per Pound, logger management, data graphing, data analysis, and data export. A USB Interface cable is included with the HOBOWare Software.</p> <p>NOTE: Software data files are <i>not backwards compatible</i>. If you upgrade your HOBOWare Pro software you can open older versions of data events but older versions of HOBOWare can not open newer versions of data files.</p>	<p>\$99</p>	
<p>Air/Water/Soil Temp Sensor (20' cable) - TMC20-HD</p> <p>Can be plugged directly into the external input jacks of U12 Family loggers or ZW series wireless datanodes to expand the range of measurement options and applications. The TMC20-HD Sensor is for use in Indoor , Outdoor and Underwater environments</p> <p>Measurement range is -40° to 50°C (-40° to 122°F) in water or soil, -40° to 100°C (-40° to 212°F) in air; response time is minutes typical to 90% in air moving 1 m/sec (2.2 mph); response time in stirred water is 1 minute typical to 90%.</p>	<p>\$40/ea 4 incld.</p>	
<p>20 Amp. split-core current transformer, 0.75 in. opening</p>	<p>\$90 /ea</p>	
<p>50 Amp. split-core current transformer, 0.75 in. opening</p>	<p>\$90 /ea 2 incld.</p>	
<p>100 Amp. split-core current transformer, 1.25 in. opening</p>	<p>\$90 /ea</p>	

<p>Hobo® U12 Temperature/Relative Humidity/Light/External Data Logger - U12-012</p> <p>This temperature, relative humidity and light intensity indoor data logger provides easy-to-use monitoring of temperature. Programmable sampling rates from one second to 18 hours. Non-volatile memory retains data even if the battery fails. User replaceable battery lasts ~one year.</p> <p>T. Range: -4°F to 158°F (-20°C to 70°C) , Accuracy: +/-0.63° @ 77°F (+/-0.35° @ 25°C) Relative Humidity Range: 5% to 95% RH, Accuracy: +/-2.5% RH from 10% to 90% Light Intensity: 1 to 3,000 lumens/sq. ft. (footcandles) Accepts One External Sensor: Yes</p>	<p>\$133 /ea</p>	
<p>HOBO UX90 Light On/Off Data Logger - UX90-002 – 128kb mem</p> <p>The HOBO Light On/Off data logger monitors indoor light changes with an internal sensor and records light on and off conditions, making it ideal for quick building energy audits and light usage analysis. The HOBO UX90-002 Light On/Off Data Logger 128 KB memory model (UX90-002) is capable of 84,650 measurements.</p> <p>Features: Auto-calibration of ON and OFF thresholds ensures reliable readings, User adjustable sensitivity control for low/high light level conditions, Optional light pipe eliminates effects of ambient sunlight or other lighting sources</p>	<p>\$85 /ea</p>	
<p>HOBO UX90 Motor On/Off Logger - UX90-004 – 128kb mem</p> <p>The HOBO Motor On/Off data logger records motor on and off conditions within an AC magnetic field with its internal sensor, or mechanical contact closures from external sensing devices. This logger is ideal for tracking the usage & runtimes of motors, pumps, compressors, and other equipment. The HOBO UX90-004 Motor On/Off Logger is 128 KB memory model (UX90-004) capable of 84,650 measurements.</p> <p>Features: Dual internal motor sensors gives better sensitivity for well shielded motors, External input for measuring mechanical contact closures when signal strength is low, Auto-calibration of ON/OFF thresholds</p>	<p>\$85 /ea</p>	

<p>HOBO UX90 Occupancy/Light Logger - UX90-006</p> <p>The HOBO Occupancy & Light data logger monitors room occupancy and indoor light changes to identify occupancy patterns and determine energy usage and potential savings. The HOBO UX90-006 Room Occupancy/Light Logger is available in a standard 128 KB memory model (UX90-006) capable of 84,650 measurements and an expanded 512KB memory version (UX90-006M) capable of over 346,795 measurements.</p> <p>Features:</p> <ul style="list-style-type: none"> Measures room occupancy up to 12 meters away Auto-calibration of ON and OFF thresholds ensures reliable readings LCD screen displays signal strength, enabling proper logger placement Optional light pipe eliminates effects of ambient sunlight or other 	<p>\$199 /ea</p>	
<p>Sylvania DS-3050 Light Meter - (replaces highly popular DS-205 ~\$260)</p> <p>The SYLVANIA Light Meter DS-3050 is a hand held illuminance meter that delivers accurate reading (+/- 3%) of light levels over a wide measurement range (0.000-4000 fc/0.00-40,000 lx).</p> <p>These meters can be used as a convenient way to check existing light levels and identifying energy savings opportunities as well as for validating new lighting installations and ensuring properly lit environment. Auto ranging and selectable range display. Automatic power off after 30 minutes. Hold function. Low battery indicator. Protective case included</p>	<p>\$130</p>	
<p>Raytek RAYMT6U Non-contact Infrared Thermometer</p> <p>Features single dot laser sighting system and the large temperature display provides current and maximum readings together while scanning. protective boot for added durability. FYI: A less expensive IR gun is Ryobi IR001 for ~\$30 but is less accurate.</p> <p>Product Features Temperature Range: -30 to 500°C -20° to 932 °F , Accuracy: ±1.5%, or ±1.5°C ±3°F whichever is greatest Distance to Spot Size: 10:1 Response Time: 500 mSec Emissivity: Pre-set at 0.95</p>	<p>\$49</p>	

<p>Kestrel 3000 Pocket Weather Meter Measures temperature and air speeds, plus relative humidity and heat stress readings. Compact size, high durability. An externally located temperature sensor and waterproof casing allow you to gauge the temperature of water (it even floats) and snow, as well as the open air. A hard slide-on case, lanyard, and battery are included.</p> <p>Accurately Measures:</p> <ul style="list-style-type: none"> • Wind Chill • Air, Water, and Snow Temperature (displayed in Fahrenheit or Celsius w/ accuracy of +/-1 degree) • Current, Average, and Maximum Wind Speed (displayed in: Beaufort Wind Scale; Knots; MPH; KPH or Feet Per Minute) • Relative Humidity • Dewpoint • Heat Stress Index 	<p>\$160</p>	
<p>A.W. Sperry DSA500A 5-Function 9-Range 400-Amp Clamp Meter</p> <p>5-Function 9-Range 400-Ampere Digital Clamp Meter is a compact Digital Snap-Around Volt-Ohm-Ammeter. UL listed to both US and Canadian Standards. Meets CE Requirements, Auto Power Off (SLEEP) High Accuracy Digital Ready, Continuity, Data Hold, Recessed Safety Designed Input Terminals. Includes Test Leads, runs on two AAA batteries</p>	<p>\$60</p>	
<p>Advanced Twisting Oscillating Perceptor (Magnetic ballast detector)</p> <p>Spin the Flicker Checker and discover whether the fluorescent lights have magnetic or electronic ballasts. Additional tops may be either aquired directly via Sylvania or the National Energy Education Development (NEED) - www.NEED.org</p>	<p>\$2 /ea</p>	

<p>ExTech - AC line splitter</p> <p>Plugging the power connector into the Line Splitter separates the hot/live conductor from the neutral (and ground). Provides easy and safe measurements of current without the need to cut off the plug and separate the conductors. Enables user of a clamp meter to measure current on a 2-wire or 3-wire power cord to 15 Amps.</p> <p>Features: Voltage check function Two clamp positions: x1 for direct readings & x10 for actual reading multiplied by 10</p>	<p>\$20</p>	
<p>International P4400 Kill A Watt Electricity Usage Monitor</p> <p>Connect appliances and assess how efficient they are. A large LCD display counts consumption by the Kilowatt-hour. Monitor your power by displaying Voltage, Amps, Line Frequency, and Power Factor. 0.2% Accuracy</p> <p>Operating Voltage 115-125 Max Current 15 A</p>	<p>\$25</p>	
<p>Double Wide Tool Bag</p> <p>Craftsman Professional 5-Pocket 14 in. or alternatively, CLC Custom LeatherCraft 1258 14" Climate Gear Tool Bag.</p> <p>Full-length storage compartments and large cargo pockets with flaps to secure tools, this mini tool bag is light but tough. Adjustable, padded shoulder strap adds comfort.</p> <p>Fits all tools included in the kit plus some room to spare. Don't looking for cheaply made alternatives – Good toolkit bags are built to take abuse of being brought into the field.</p>	<p>\$40</p>	

Approx. Value of Complete kit: \$1,720

Additional Tools Not provided in the kit that are HIGHLY suggested to have on hand.

Large and small Phillips & flathead screw drivers, Drill with metal bit (for drilling ducts), Duct Tape (or other sticky), Masking tape (for labeling), Plastic bubbles (visually show air paths), Pliers, ViceGrips, wire stripper, Energy Monitoring 'in progress' signs/tags, permanent marker, eye protection, gloves & more!