



The selection of tools for this kit is built upon our many experiences with students and professional feedback from the Energy community. It is by no means a complete kit but should is comprehensive enough to accurately measure and verify energy movement within buildings.

The Energy Management Toolkit	Price is approx – as of Nov. 2010	
Professional HOBO FlexSmart Logger for Energy Monitoring The HOBO Energy Logger is a 15 channel indoor data logger with the ability to measure and record almost any environmental condition using the required FlexSmart Modules. The Energy Logger allows you to measure and record: >> AC/DC Current, AC/DC Voltage,4-20mA >> Power, Kilowatts, Kilowatt Hours >> Pressure (Differential, Barometric, Gauge) >> Pulse and Analog Inputs >> Wind, Rain, Light, Carbon Dioxide >> Temperature and Relative Humidity	\$315	
HOBOware PRO Software (BHW-PRO-CD) 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. For applications that don't require all the features of HOBOware Pro, Onset offers an entry level HOBOware Lite package for HOBO USB loggers. NOTE: Software datafiles are not backwards compatible. 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.	\$99	
USB=>Serial Adapter w/Serial Cable for FlexSmart Logger Keyspan USB-to-serial adaptor for use with all RS-232 serial devices and a PC 3.5 Interface Cable for PC computers. The Keyspan "High Speed" USB Serial Adapter is used with modems, digital cameras, ISDN terminal adapters, graphics tablets, PDAs, bar code scanners, label printers and other serial devices, which require an RS-232 connection.	\$50	
12-bit Temperature Sensor, 6-meter Cable (3 included) The full measurement range is -40° to 100° C (-40° to 212° F). The S-TMB-M006 Sensor is for use in Indoor , Outdoor and Underwater environment.	\$100 /ea	

FlexSmart AC Power Adapter Recommended if deploying datalogger over extended period of time and or deployment location is near an AC outlet.	\$20	
FlexSmart True RMS Module, 2 Channels (2 included) TRMS (TRMSA) Module (#S-FS-TRMSA) 2 Channel Input Measurement Module. Compatible with Industry-standard Current and Potential Transformers. Input Range of 512 mV RMS Full Scale. Output Range of 333 mV RMS Full Scale Range: 5mV to 512mV (Compatible with 333mV FS Output Sensors) Maximum Input ± 1V Minimum Input 5mV Accuracy ± 0.3% of Reading; ± 0.5% FSR	\$90 /ea	FexSmart* TRMS Active
20 Amp. split-core current transformer, 0.75 in. opening	\$42 /ea	OZO AMP
50 Amp. split-core current transformer, 0.75 in. opening	\$42 /ea	Management of the Control of the Con
100 Amp. split-core current transformer, 1.25 in. opening	\$42 /ea	The Additions of the Addition
Small Hobo® U12 Dataloggers (2 include) Temp/RH/Light/External Input	\$130 /ea	onset
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.		
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		HOBO* data logger tempRH/light/ext channel

Strait-Line Sonic Laser Tape – up to 50 Ft. Sonic laser tape with laser targeting to accurately locate measurement end point. 50 ft. range, 1 in. resolution. Fairly accurate and fast - a great estimating tool but one that may be less useful in a professional setting where laser taps are far more accurate and reliable. * Laser Targeting indicates end point of measurement. * Can automatically calculate area and volume by doing the math	\$25	STRAIT-INE COMPANY OF THE PROPERTY OF THE PROP
Sylvania DS-3050 Light Meter - (replaces highly popular DS-205 ~\$260) 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). 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	\$140	
Raytek RAYMT6U Non-contact Infrared Thermometer 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. 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	\$42	I Roytok

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. Accurately Measures: 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	\$160	Kestre Sooo
A.W. Sperry DSA500A 5-Function 9-Range 400-Amp Clamp Meter 5-Function 9-Range 400-Ampere Digital Clamp Meter is a compact Digital Snap-Around Volt-Ohm-Ammeter. UL listed to both US and Canaidan 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	\$60	THE PLANT OF THE P
Advanced Twisting Oscillating Perceptor (Magnetic ballast detector) 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	\$2 /ea	OF THE STATE OF TH

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. Features: Voltage check function Two clamp positions: x1 for direct readings & x10 for actual reading multiplied by 10	\$20	LICACIONAL DE LA CONTROL DE LA
International P4400 Kill A Watt Electricity Usage Monitor 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 Operating Voltage 115-125 Max Current 15 A	\$25	NILLA WATTY
Craftsman Professional 5-Pocket 14 in. Mini Double Wide Tool Bag Two separate 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. Fits all tools included in the kit plus some room to spare.	\$30	

Approx. Value of Complete kit: \$1,860

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,