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DID YOU KNOW... that you can borrow tools from Southern California Edison for free? Whether you are a California business or residential customer of SCE, you can borrow tools from us for free.

CONTACT US:
Address: Energy Education Center – Tulare
4175 S. Laspina St.
Tulare, CA 93274
Phone: 800.772.4822

Q&A

QUESTION: What kinds of tools are available for lending?
ANSWER: Digital meters, data loggers, temperature sensors, etc...

QUESTION: How long can I use the equipment?
ANSWER: Two weeks is our normal lending period.

QUESTION: How much does this service cost?
ANSWER: The tool lending library is a completely free service.

QUESTION: Can I install the equipment?
ANSWER: Some of the tools do not require contact with electricity or hazardous conditions, other tools should be installed by a qualified professional.

QUESTION: How can the tools help me and my project?
ANSWER: Testing, troubleshooting, diagnosing problems, and analyzing system performance.

QUESTION: How do I check out a tool?
ANSWER: Contact Southern California Edison:

Mail
Energy Education Center – Tulare
4175 S. Laspina St.
Tulare, CA 93274
Phone
800.772.4822

Online
sce.com/forms/ToolLendingLibraryBorrowerRequest.aspx

QUESTION: How and where do I pick up tools?
ANSWER: We can ship them to you using your UPS or FedEx account number or we can interoffice mail them to some of our public offices. Request a tool online at:
sce.com/forms/ToolLendingLibraryBorrowerRequest.aspx
ENERGY / POWER

**DIGITAL CLAMP METER**
- **Measures:** Amperage / Voltage / Ohms
- **Barcode:** TLL 3
- **Manufacturer:** Mastech
- **Model:** ms2000g

**Description:** Testing, diagnostics, troubleshooting, etc. Measures AC & DC voltage, AC/DC amperage, ohms, and frequency.

---

**DIGITAL CLAMP ON METER**
- **Measures:** Amperage / Voltage / Ohms
- **Barcode:** TLL 7
- **Manufacturer:** Amprobe
- **Model:** acdc-610

**Description:** Testing, diagnostics, troubleshooting, etc. Measures AC & DC voltage, AC/DC amperage, ohms, and frequency.

---

**DIGITAL CLAMP ON METER**
- **Measures:** Amperage / Voltage / Ohms
- **Barcode:** TLL 141
- **Manufacturer:** Amprobe
- **Model:** SCD-41PQ

**Description:** Testing, diagnostics, troubleshooting, etc. Measures AC & DC voltage, AC/DC amperage, ohms, and frequency.

---

**ADVANCED WIRE TRACER**
- **Measures:** N/A
- **Barcode:** TLL 11, 294
- **Manufacturer:** Amprobe
- **Model:** AT2000

**Description:** Multifunctional system locates circuit breakers, ground faults, opens, shorts and energized wires.

---

**MOTOR ON/OFF HOBO DATA LOGGER**
- **Measures:** Events
- **Barcode:** TLL 26, 27, 28, 29, 30, 31
- **Manufacturer:** Onset
- **Model:** H06-003-02

**Description:** Stores the time at which a motor was turned on or off with this compact data logger. Records approximately 2000 times stamped events in memory. This unit senses the presence of an SC magnetic field.

---

**STATE DATA LOGGERS**
- **Measures:** Events
- **Barcode:** TLL 32, 33, 34
- **Manufacturer:** Onset
- **Model:** H006-003-02

**Description:** Store the time at which a magnetic or relay contact closed with this compact data logger. Records approximately 2000 time stamped events in memory.
AMPERAGE TO VOLTAGE TRANSUDER FOR H8 HOBO DATA LOGGERS

MEASURES:
- Amperage

BARCODE:
- TLL 42, 43, 44

MANUFACTURER:
- Onset

MODEL:
- CTV-A/CTV-B/CTV-C

DESCRIPTION:
For use with the HOBO H8 family data loggers, this clamp on amperage transducer comes in ranges from 0-20 amps, 0-50 amps, and 0-100 amps.

ELECTRICAL CALCULATOR

MEASURES:
- N/A

BARCODE:
- TLL 61

MANUFACTURER:
- Calculated Industries

MODEL:
- ElectriCalc Pro

DESCRIPTION:
Use this NEC code based calculator to solve for wire size, voltage drop, conduit sizing, etc. Find motor full-loads, compute fuse, breaker and overload protection sizes.

OUTDOOR/INDUSTRIAL 4-CHANNEL EXTERNAL SIGNAL HOBO DATA LOGGER

MEASURES:
- External Signal

BARCODE:
- TLL 46, 47

MANUFACTURER:
- Onset

MODEL:
- H08-008-04

DESCRIPTION:
Wire your external field devices to this data logger and record 32000 time stamped measurements. This unit accepts a variety of signals including temperature, AC current, CO2, 4-20mA and 0-2.5 VDC.

DATALOGGING MULTIMETER

MEASURES:
- Volts, ohms, decibels, duty cycle and pulse width, continuity, capacitance and frequency.

BARCODE:
- TLL 71

MANUFACTURER:
- Fluke

MODEL:
- 189

DESCRIPTION:
Applications for multimeters include testing, diagnostics, troubleshooting, etc. This multimeter measures AC and DC voltage, AC and DC amperage, ohms, duty cycle and pulse width, continuity, capacitance and frequency.

INTERFACE CABLE FOR 4-20MA INPUT SIGNALS FOR HOBO DATA logGERS

MEASURES:
- N/A

BARCODE:
- TLL 53, 54

MANUFACTURER:
- Onset

MODEL:
- CABLE-4-20mA

DESCRIPTION:
Use this cable to wire up a 4-20mA sensor to a HOBO series H8 data logger.

THREE PHASE POWER QUALITY ANALYZER

MEASURES:
- Every power system parameter, voltage, current, frequency, power, power consumption (energy), unbalanced and flicker, harmonics and inter harmonics. Captures events like dips and swells, transients, interruptions and rapid voltage changes.

BARCODE:
- TLL 79, 99

MANUFACTURER:
- Fluke

MODEL:
- 434

DESCRIPTION:
The fluke 434 three phase power quality analyzers help you locate, predict, prevent and troubleshoot problems in power distribution systems.
POWER QUALITY LOGGER

MEASURES: V, A, W, VAR, PF, energy, flicker, voltage events and THD, voltage and current harmonics, mains signaling, unbalance and frequency.

DESCRIPTION: Designed to address applications from basic to advanced including disturbance analysis, quality of service compliance, long term power quality studies, and load studies.

BARCODE: TLL 73, 202

MANUFACTURER: Fluke

MODEL: 1744

400A AC/DC WATT CLAMP DMN & AC LINE SPLITTER

MEASURES: Watts, current and voltage

DESCRIPTION: Applications for clamp on meters include testing, diagnostics, troubleshooting, etc. This clamp on meter measures AC and DC voltage, AC and DC amperage, ohms and frequency. AC line splitter allows clamp meter to measure AC current on a 2 wire or 3 wire power cord to 15A without the need to cut off the plug and separate the conductors.

BARCODE: TLL 76, 77

MANUFACTURER: Extech

MODEL: 380940, 480172

INSULATION AND CONTINUITY TESTER

MEASURES: Insulation ground, low resistance, battery and hi pot testing

DESCRIPTION: Used to test electrical wiring and other components in buildings, manufacturing facilities, government entities and other general business operations. Used for insulation testing, ground testing, low resistance testing, battery testing, hi pot testing and more.

BARCODE: TLL 148

MANUFACTURER: Megger

MODEL: MIT420-EN

POWER LINE SIGNAL ANALYZER

MEASURES: Analysis of power line noise

DESCRIPTION: Analyzes AC power line noise. Records i-memory up to 190 X10 codes for later review.

BARCODE: TLL 63

MANUFACTURER: Monterey

MODEL: MI-PLSA

KILL A WATT EZ

MEASURES: Cost, line frequency, voltage, power factor and quality of power

DESCRIPTION: The Kill A Watt EZ displays your running cost and projected cost of power. Now you will know how much that pesky energy hog appliance is costing you to run each day. See costs of your electrical expenses by day, week etc. You can also check the quality of power by monitoring line frequency, voltage, and power factor.

BARCODE: TLL 272, 277, 273, 270, 271, 268, 276, 275, 274, 267

MANUFACTURER: PS

MODEL: P4460

KILL A WATT POWER STRIP

MEASURES: Cost, line frequency, voltage, power factor and quality of power

DESCRIPTION: Check the quality of your power by monitoring voltage, line frequency, amperage, KWH, current leakage and more. Now you’ll know how much power your entire computer or home theater system is using.

BARCODE: TLL 209, 262, 261, 259, 265, 263, 258, 256, 264

MANUFACTURER: PS

MODEL: P4320
SMART READER PLUS 3 DATA LOGGER

MEASURES: 8-channel AC Current, Voltage & Temperature

BARCODE: TLL 103

MANUFACTURER: ACR Systems

MODEL: Plus 3

DESCRIPTION: The SmartReader Plus 3 easily and accurately records AC current and voltage (requires separate transducer). From this data, total energy consumption (kWh) can be determined for a given period using TrendReader® software. To be used with the Amprobe current clamps.

POWER WATCH QUALITY MONITOR

MEASURES: Voltage disturbances

BARCODE: TLL 301

MANUFACTURER: ACR Systems

MODEL: PWV-001

DESCRIPTION: The ACR Power Watch voltage disturbance recorder is the easiest way to monitor and record critical voltage disturbances from any power receptacle. No wiring or hazardous connections required.

ENERGY MONITOR

MEASURES: Wattage

BARCODE: TLL 10, 145

MANUFACTURER: Electronic Educational Devices

MODEL: Watts up?

DESCRIPTION: Plug your 120 VAC electrical appliance into this device for a reading of instantaneous power usage (KW) and usage over time (KWH).

ADAM DATA ACQUISITION MODULES DIGITAL IO DATA LOGGER

MEASURES: State and Motor on/ off

BARCODE: TLL 308

MANUFACTURER: Advantech

MODEL: 4050

DESCRIPTION: The ADAM-4050 features seven digital input channels and eight digital output channels. The outputs are open-collector transistor switches that you can control from the host computer. You can also use the switches to control solid-state relays, which in turn can control heaters, pumps and power equipment.

DENT CT LOGGER

MEASURES: On/Off transitions

BARCODE: TLL 279, 282

MANUFACTURER: Dent

MODEL: TOU 3G

DESCRIPTION: The new TOU 3G Contact Logger is an ultra small, battery powered, portable logger used to measure equipment run times for energy audits. The TOU 3G-CT records all on/off transitions from contact closures like electric, gas or other pulse outputs.

DENT MAG LOGGER

MEASURES: Motor loads and total time of use data

BARCODE: TLL 280, 281

MANUFACTURER: Dent

MODEL: TOU series

DESCRIPTION: The SMARTlogger™ series of instruments are designed to monitor the on-off status and total time of use data and provide the operating schedule for energy consuming devices or systems. Small, robust, and no installation required, each of these instruments provide powerful data for superior management.
**CLAMP METER**

**MEASURES:**
- AC/DC Current range

**BARCODE:**
TLL 278

**MANUFACTURER:**
Fluke

**MODEL:**
337

**DESCRIPTION:**
This Fluke 337 TRMS AC/DC Clamp Meter measures AC/DC current range up to 1000A and AC/DC volt range up to 600V. It also measures continuity and frequency.

---

**E-MON D-MON METER DATA LOGGER**

**MEASURES:**
- KWh

**BARCODE:**
TLL 302

**MANUFACTURER:**
E-Mon D-Mon

**MODEL:**
N/A

**DESCRIPTION:**
A solid-state electronic kWh submeters, energy monitors, interval data recorders and automatic meter reading software.

---

**OSCILLOSCOPE**

**MEASURES:**
- Voltage waveforms

**BARCODE:**
TLL 309

**MANUFACTURER:**
Advantek

**MODEL:**
OSC-1030

**DESCRIPTION:**
Oscilloscopes are commonly used when it is desired to observe the exact wave shape of an electrical signal. In addition to the amplitude of the signal, an oscilloscope can show distortion and measure frequency.

---

**EARTH GROUND TESTER**

**MEASURES:**
- Voltage

**BARCODE:**
TLL 290

**MANUFACTURER:**
Fluke

**MODEL:**
1625

**DESCRIPTION:**
Stakeless testing, quick ground loop testing (2 clamps); Earth impedance measurement at 55 Hz; Automatic frequency control (AFC) (94, 105, 111, 128 Hz); Measuring voltage switch able 20/48V; Programmable limits, settings; Continuity with buzzer – The Fluke 1625 is a distinctive earth ground tester that can perform all four types of earth ground measurement.

---

**MULTIMETER**

**MEASURES:**
- Voltage and frequency

**BARCODE:**
TLL 293

**MANUFACTURER:**
Fluke

**MODEL:**
87

**DESCRIPTION:**
The Fluke 87-5 Digital Multimeter is a versatile True-RMS meter that’s perfect for professional or around-the-house use.

---

**DENT POWER PRO ELITE DATA LOGGER**

**MEASURES:**
- Volts, Amps, Watts, Volt-Amps (VA), Volt-Amps reactive (VAR), Kilowatts (kW), Kilowatt Hours (kWh), Power Factor and harmonics;

**BARCODE:**
TLL 114

**MANUFACTURER:**
Dent

**MODEL:**
Power Pro Elite

**DESCRIPTION:**
The ELITEpro is a complete solution to pinpoint electric usage and quantify consumption by measuring, storing, and analyzing Volts, Amps, Watts, Volt-Amps (VA), Volt-Amps reactive (VAR), Kilowatts (kW), Kilowatt Hours (kWh), Power Factor and harmonics; up to 144 different parameters.
**POWER COST MONITOR**

**MEASURES:**
- Voltage

**BARCODE:**
- TLL 353

**MANUFACTURER:**
- Blue Line

**MODEL:**
- BL28000

**DESCRIPTION:**
With a PowerCost Monitor you can tell at a glance how much electricity your home is consuming - moment-to-moment and in total. Real-time feedback means real savings for you.

---

**ONSET FLEX SMART ANALOG MODULE**

**MEASURES:**
- Indoor, DC Voltage, 4-20mA, air velocity, carbon dioxide, compressed air flow, DC current, kilowatts, pressure, differential, VOC

**BARCODE:**

**MANUFACTURER:**
- Hobo

**MODEL:**
- S-FS_CVIA

**DESCRIPTION:**
The 12-bit FlexSmart Analog Input Module handles two single-ended input channels with user-configurable ranges of 0 to 20mA DC or 0 to 20 V DC which is suitable for 2.5-, 5-, and 10-volt sensors. Field wiring is 2- or 3-wire via screw terminals.

---

**PULSE INPUT ADAPTERS**

**MEASURES:**
- Pulse

**BARCODE:**
- TLL 348, 347

**MANUFACTURER:**
- Onset

**MODEL:**
- S-UCC-Moo6

**DESCRIPTION:**
The Electronic Switch Pulse Input Adapter connects sensors with pulse outputs to loggers with smart-sensor inputs. This Smart Sensor is compatible with electronic switch closures such as FET or open-collector outputs, or CMOS-level logic signals with a maximum input frequency of 120 Hz (120 pulses per second). To be used with the Hobo Energy Logger Pro.

---

**HOBO ENERGY LOGGER PRO**

**MEASURES:**
- Energy

**BARCODE:**
- TLL 346, 345, 344, 343, 342, 341 340

**MANUFACTURER:**
- Hobo

**MODEL:**
- H22-001

**DESCRIPTION:**
The HOBO Energy Logger Pro Data Logger is a modular, re-configurable data logging system for energy and industrial monitoring applications.

---

**CLAMP METER**

**MEASURES:**
- Amperage/Current/Resistance/Continuity

**BARCODE:**
- TLL 373, 378

**MANUFACTURER:**
- Extech

**MODEL:**
- M9200

**DESCRIPTION:**
Quickly and easily check for live wires before testing. 400 A AC clamp meter and non contact voltage detector. Measures AC voltage, DC voltage, AC current, resistance measurements, continuity check and diode testing.

---

**CLAMP METER WITH IR THERMOMETER**

**MEASURES:**
- AC/DC voltage/resistance/frequency/capacitance and temperature

**BARCODE:**
- TLL 375, 380

**MANUFACTURER:**
- Extech

**MODEL:**
- EX830

**DESCRIPTION:**
1000 amp true RMS AC/DC clamp meter has a built in non contact IR thermometer with laser pointer. Measures AC/DC voltage, resistance, frequency, capacitance. Also measures temperature with K type wires.
ENERGY / POWER

DENT SMARTLOGGER CONTACT LOGGER

MEASURES:
External switch or relay

BARCODE:
TLL 383, 384

MANUFACTURER:
Dent

MODEL:
Contact logger

DESCRIPTION:
Measures an external switch relay, on/off logging and total in time. This non contact monitoring system provides powerful data for superior energy management.

WALL PROBE

MEASURES:
N/A

BARCODE:
TLL 4

MANUFACTURER:
SLI

MODEL:
Provision 100

DESCRIPTION:
Allows users to look around corners and in small spaces like inside walls.

WALL PROBE INSPECTION CAMERA

MEASURES:
N/A

BARCODE:
TLL 117, 119

MANUFACTURER:
Rigid

MODEL:
9 Mm Sea Snake Micro

DESCRIPTION:
Allows users to look around corners and in small spaces like inside walls.

WALL PROBE INSPECTION CAMERA

MEASURES:
N/A

BARCODE:
TLL 118

MANUFACTURER:
Rigid

MODEL:
17mm sea snake micro

DESCRIPTION:
Allows users to look around corners and in small spaces like inside walls.
**OPTO 22 SNAP PAC LEARNING CENTER INDUSTRIAL AUTOMATION TRAINING**

**MEASURES:** N/A

**BARCODE:** TLL 352

**MANUFACTURER:** Opto 22

**MODEL:** Learning Center

**DESCRIPTION:** This programmable automation controller learning center comes with step by step instructions to program a small scale industrial control application. The technology is similar to PLC’s but with an more intuitive interface and program style.

---

**SOLMETRIC SUNEYE SOLAR PATHFINDER**

**MEASURES:** N/A

**BARCODE:** TLL 66, 67, 304, 305

**MANUFACTURER:** Solmetric

**MODEL:** Suneye

**DESCRIPTION:** The Suneye is a hand held electronic device that allows users to instantly assess total potential solar energy given the shading of a particular site. Identifying the shading pattern early in the process reduces the expense of system and home design and improves the efficiency of the final system.

---

**UNDERGROUND UTILITY LOCATOR**

**MEASURES:** N/A

**BARCODE:** TLL 140/144

**MANUFACTURER:** Rigid

**MODEL:** SR20/ST510

**DESCRIPTION:** Used to help locate underground wires, conduits and pipes. The antennas power the large mapping display which provides all the information you need to locate underground utilities with ease and confidence. Can be used with the ST510 transmitter that applies a locating signal to unpowered underground wires, conduits and pipes.

---

**COMPASS**

**MEASURES:** Direction

**BARCODE:** TLL 303

**MANUFACTURER:** N/A

**MODEL:** N/A

**DESCRIPTION:** This compass is to be used with the Daystar meter.

---

**CABLE TESTER**

**MEASURES:** Continuity

**BARCODE:** TLL 286

**MANUFACTURER:** Extech

**MODEL:** CT100

**DESCRIPTION:** Tests for shorts, opens, miswires and reversals. Tests EIA/TIA568A and 568B and 10Base-T shield detection tests shield integrity. Tests installed wiring and jumper cables. “F” connector for troubleshooting CAT5 coaxial installations. Tests for CAT5 opens and shorts. Tests CAT5 cable lengths from 3 to 600ft (0.9 to 183m).

---

**DISTANCE METER AND TRANSMITTER**

**MEASURES:** Distance

**BARCODE:** TLL 5, 6

**MANUFACTURER:** Sonin

**MODEL:** 10300

**DESCRIPTION:** Distance measurements in surveying, layout, and square footage. Calculations with a range of up to 300 ft. The base unit sends infrared light signals to the target unit and receives sound waves back for distance calculations.
SOLAR PATHFINDER

**MEASURES:**
Shading

**BARCODE:**
TLL 310

**MANUFACTURER:**
Solar Pathfinder

**MODEL:**
N/A

**DESCRIPTION:**
This non-electronic instrument is an easy-to-use tool that accurately measures the shading of any site, allowing the user to see what could shade the system throughout the year.

DAYSTAR METER

**MEASURES:**
Solar irradiance

**BARCODE:**
TLL 254

**MANUFACTURER:**
daystar

**MODEL:**
N/A

**DESCRIPTION:**
Daystar’s DS-05A solar meter brings “point and read” simplicity to the measurement of solar irradiance. Just turn the meter on, point the sensor at the sun and obtain a reading in Watts/m².

SOLAR ANALYZER

**MEASURES:**
Voltage

**BARCODE:**
TLL 292

**MANUFACTURER:**
Amprobe

**MODEL:**
Solar 500

**DESCRIPTION:**
Professional analyzer for testing, maintenance, troubleshooting and efficiency of solar panels. The analyzer is used in the installation of solar panels to determine the proper inverter size, optimum power output position of panels and identifies broken or worn-out cells.

VOC - ISC SOLAR BOS STRING CHECKER

**MEASURES:**
Current and Voltage

**BARCODE:**
TLL 475, 476

**MANUFACTURER:**
Solar BOS, Inc.

**MODEL:**
SC-600-20

**DESCRIPTION:**
Used to check Current and Voltage at a PV Panel or Combiner Box.

CLINOMASTER

**MEASURES:**
Height, angle and slope

**BARCODE:**
TLL 255

**MANUFACTURER:**
Brunton

**MODEL:**
CM360LA

**DESCRIPTION:**
The Brunton ClinoMaster height meter / clinometers represent the highest quality in precision, sensitivity and durability. The Brunton ClinoMaster can measure the height, angle and slope of most anything readable from 0-90 degrees and 0-150 percent, with estimations to 0.25 degrees.

SOLMETRIC PVA-600 PV ANALYZER

**MEASURES:**
Current and Voltage

**BARCODE:**
TLL48i

**MANUFACTURER:**
Solemetric

**MODEL:**
PVA-600

**DESCRIPTION:**
Used to measure the current-voltage (I-V) curves of PV modules and strings.

DAYSTAR METER

**MEASURES:**
Solar irradiance

**BARCODE:**
TLL 254

**MANUFACTURER:**
daystar

**MODEL:**
N/A

**DESCRIPTION:**
Daystar’s DS-05A solar meter brings “point and read” simplicity to the measurement of solar irradiance. Just turn the meter on, point the sensor at the sun and obtain a reading in Watts/m².
### Digital Tachometer

**Measures:**
Rotational Speed

**Barcode:**
TLL 8

**Manufacturer:**
Shimpo

**Model:**
DT-2071

**Description:**
Used to test the motor rpm for loading measurements and efficiency analysis.

---

### Digital Tachometer

**Measures:**
Rotational Speed

**Barcode:**
TLL 84

**Manufacturer:**
Monarch

**Model:**
PLT200KIT

**Description:**
Used to test the motor rpm for loading measurements and efficiency analysis.

---

### Vibration Meter

**Measures:**
Acceleration, velocity and displacement

**Barcode:**
TLL 85

**Manufacturer:**
Extech

**Model:**
407860

**Description:**
Measures vibrations in motors, bearings, fans, pumps, and other rotating machinery. Will record minimum and maximum values for later recall.

---

### Tachometer

**Measures:**
Rotational Speed

**Barcode:**
TLL 285

**Manufacturer:**
Extech

**Model:**
461995

**Description:**
This digital tachometer can be used to test motor RPM for loading measurements and efficiency analysis.

---

### Inductive Clamp

**Measures:**
Signal

**Barcode:**
TLL 149

**Manufacturer:**
Rigid

**Model:**
RG20973

**Description:**
This tool is to be used with TLL 140 and 144. The RIDGID Inductive clamp allows users to apply a signal to a cable or pipe when connecting directly to the target conductor is not possible. The clamp couples the transmitting signal onto the conductor which then allows users to locate using a compatible receiver.
**DIGITAL LIGHT METER**

**MEASURES:** Foot candles/lux

**BARCODE:** TLL 20, 86, 87

**MANUFACTURER:** Extech

**MODEL:** 407026

**DESCRIPTION:**
Uses include retrofit calculations, ergonomics analysis, and checking for proper light levels. This unit reads out values in Lux and Foot candles on an LCD display.

---

**LIGHT ON/OFF HOBO DATA LOGGER**

**MEASURES:** Events

**BARCODE:** TLL 23, 24, 25, 92, 96

**MANUFACTURER:** Onset

**MODEL:** U9-200 (TLL 92, 96) H06-002-02 (TLL 23,24,25)

**DESCRIPTION:**
Store the time at which lights are turned on or off with this compact data logger. Records approximately 2000 time stamped events in memory.

---

**DIGITAL / MAGNETIC BALLAST CHECKER**

**MEASURES:** N/A

**BARCODE:** TLL 63

**MANUFACTURER:** Sensor Switch

**MODEL:** Discriminator

**DESCRIPTION:**
Simply point this tool at the lights in question, press the button and this tool quickly determines if the light’s ballast is magnetic or electronic. An LED indicates the results by turning red or green.

---

**THERMAL IMAGER**

**MEASURES:** Long wave infrared radiation (surface temperature)

**BARCODE:** TLL 68

**MANUFACTURER:** Fluke

**MODEL:** Ti30

**DESCRIPTION:**
This thermal imaging unit allows the user to obtain instant and accurate thermal images and radiometric readings at a remote distance.

---

**THERMAL IMAGER**

**MEASURES:** Long wave infrared radiation (surface temperature)

**BARCODE:** TLL 115, 138, 350, 351, 357, 363

**MANUFACTURER:** Extech

**MODEL:** I5 IRC40

**DESCRIPTION:**
This thermal imaging unit allows the user to obtain instant and accurate thermal images and radiometric readings at a remote distance.

---

**DATALOGGING LIGHT METER**

**MEASURES:** Foot candles/lux

**BARCODE:** TLL 69

**MANUFACTURER:** Extech

**MODEL:** 401036

**DESCRIPTION:**
Light meter can be used to retrofit calculations, ergonomics analysis, and to check for proper light levels. This unit reads out values in Lux or Foot candles on an LCD display. This unit will also log lighting events.
**SOLAR GAIN LOW E DETECTOR**

**MODEL:** AE4600

**DESCRIPTION:** Designed to measure transparent residential windows constructed of 3/32" or 1/8" glass. Simultaneously identifies the location of Low E coatings on residential windows and also identifies the solar gain performance category of the coating.

**MEASURES:** Indicates solar heat gain, coefficient (SHGC) values and Low E locations on single or dual pane windows

**BARCODE:** TLL 74, 75, 299

**MANUFACTURER:** EDTM

---

**SOUND DECIBEL DATA LOGGER**

**MODEL:** HD600

**DESCRIPTION:** The Extech HD600 Data Logging Sound Level Meter can log up to 20,000 points and features a rugged, double-molded housing with built-in USB port.

**MEASURES:** Sound

**BARCODE:** TLL 297

**MANUFACTURER:** Extech

---

**FLIR THERMAL CAMERA**

**MODEL:** T series

**DESCRIPTION:** The FLIR T-Series of portable infrared cameras takes infrared camera ergonomics, weight and ease-of-use to a new level.

**MEASURES:** Long wave infrared radiation

**BARCODE:** TLL 306

**MANUFACTURER:** Flir

---

**DENT SMARTLOGGER LIGHTING LOGGER**

**MODEL:** Light logger

**DESCRIPTION:** Measures total on time and on/off transitions of almost any device. This non contact monitoring system provides powerful data for superior energy management.

**MEASURES:** Light intervals

**BARCODE:** TLL 381, 382

**MANUFACTURER:** Dent
HUMIDITY, TEMPERATURE AND OTHER ENVIRONMENTAL CONDITIONS

RELATIVE HUMIDITY/TEMP/LIGHT/EXTERNAL SIGNAL HOBO DATA LOGGER

**MEASURES:** Relative humidity/temp/light/external signal

**BARCODE:** TLL 35, 36, 37, 38, 39

**MANUFACTURER:** Onset

**MODEL:** h08-004-02

**DESCRIPTION:** Set the interval time for recording data and this compact data logger will record approximately 7900 time stamped measurements in memory.

TEMPERATURE/RELATIVE HUMIDITY SMART SENSOR FOR LCD HOBO DATA LOGGER

**MEASURES:** Temperature/relative humidity

**BARCODE:** TLL 50, 57

**MANUFACTURER:** Onset

**MODEL:** S-THA-M006

**DESCRIPTION:** Plug this smart sensor into the HOBO LCD data logger and the sensor will configure itself in the data logger. The range of this sensor is -40°F to 187°F.

TEMPERATURE AND RELATIVE HUMIDITY HOBO DATA LOGGER

**MEASURES:** Temperature/relative humidity

**BARCODE:** TLL 40, 41

**MANUFACTURER:** Onset

**MODEL:** H08-032-08

**DESCRIPTION:** External mount, large memory capacity stores over 65000 time stamped measurements in memory.

EXTERNAL TEMPERATURE SENSOR FOR HOBO DATA LOGGERS

**MEASURES:** Temperature

**BARCODE:** TLL 55

**MANUFACTURER:** Onset

**MODEL:** TMC6-HA

**DESCRIPTION:** An external temperature sensor for use with the HOBO series H8 data loggers

TEMP/RELATIVE HUMIDITY/EXTERNAL SIGNAL LCD HOBO DATA LOGGER

**MEASURES:** Temperature/relative humidity/external signal

**BARCODE:** TLL 48, 49

**MANUFACTURER:** Onset

**MODEL:** H14-002

**DESCRIPTION:** Plug in your HOBO smart sensor or external signal into this data logger with LCD display and record 65000 time stamped measurements.

DIGITAL PSYCHROMETER

**MEASURES:** Humidity/air temperature/dew point temperature/wet bulb temperature

**BARCODE:** TLL 60

**MANUFACTURER:** Extech

**MODEL:** RH300

**DESCRIPTION:** This multi–function meter can be used to evaluate air conditions for a variety of applications.
SLING PSYCHROMETER

**MEASURES:**
Relative humidity

**BARCODE:**
TLL 64

**MANUFACTURER:**
Bacharach

**MODEL:**
12-7012

**DESCRIPTION:**
The old fashion, yet accurate way of determining relative humidity. Sling the thermometers, read the temperatures and use the scale on the side to obtain the relative humidity.

IR THERMOMETER

**MEASURES:**
Temperature

**BARCODE:**
TLL 83

**MANUFACTURER:**
Westward

**MODEL:**
TVEP7

**DESCRIPTION:**
This non contact, laser targeted, infrared temperature sensor can be used for applications, including weatherization and HVACR. Measurement range is from -67 to 428 degrees.

MINI THERMO ANEMOMETER

**MEASURES:**
Air velocity wind chill dew point relative humidity temperature

**BARCODE:**
TLL 65

**MANUFACTURER:**
Extech

**MODEL:**
45158

**DESCRIPTION:**
This small, water resistant, portable anemometer senses a range of HVAC parameters as well as weather conditions. Can be used to assist in checking the performance of HVAC systems and for commissioning procedures.

RH/TEMPERATURE SENSOR

**MEASURES:**
Relative humidity and temperature

**BARCODE:**
TLL 104

**MANUFACTURER:**
Hobo

**MODEL:**
S-THB_-MOOX

**DESCRIPTION:**
This temperature and relative humidity sensor can be used with a variety of Hobo data loggers.

IR THERMOMETER

**MEASURES:**
Temperature

**BARCODE:**
TLL 70, 82, 2, 107

**MANUFACTURER:**
Fluke/Mitchell

**MODEL:**
68/62/MITSX6

**DESCRIPTION:**
This non contact, laser targeted, infrared temperature sensor can be used for applications including weatherization and HVACR. Measurement range is from -25 to 1400 degrees.

MICRO STATION

**MEASURES:**
Outdoor temperature, RH, DC voltage, soil moisture, 4-20mA, rainfall, leaf wetness, pressure, barometric pressure, pulse, light intensity and wind.

**BARCODE:**
TLL 91

**MANUFACTURER:**
Hobo

**MODEL:**
H21-002

**DESCRIPTION:**
Micro Station provides reliable, accurate outdoor monitoring even in severe weather conditions. It accepts up to four plug-and-play Smart Sensors.
### Soil Sensor

**Measures:**
- Soil moisture

**Barcode:** TLL 112

**Manufacturer:** Hobo

**Model:** S-SMC-M005

**Description:**
The HOBO Soil Moisture Smart Sensor measures soil water content.

### Smart Button

**Measures:**
- Air velocity
- Wind chill
- Dew point
- Relative humidity
- Temperature

**Barcode:** TLL 102

**Manufacturer:** ACR Systems

**Model:** 01-0180

**Description:**
The ACR SmartButton is a miniature-sized temperature logger that is extremely easy to use. Applications include: food processing verification, pharmaceutical storage, laboratories, transportation of temperature sensitive goods, equipment run time, HVAC system testing and balancing, etc.

### Smart Reader Plus 6

**Measures:**
- Temperature

**Barcode:** TLL 253

**Manufacturer:** ACR Systems

**Model:** SRP-006-32K

**Description:**
The SmartReader Plus 6 data logger is ideal for monitoring temperature over a wide range.

### Digital HVAC Analyzer

**Measures:**
- Temperature
- Humidity
- Dew point
- Velocity
- Volume
- Measures power in BTU/HR

**Barcode:** TLL 296

**Manufacturer:** TIF

**Model:** VA500A

**Description:**
More than just an Anemometer, the VA500A measures all HVAC inlet and outlet variables, allowing an intelligent analysis of system performance.

### Dual Input Datalogging Thermometer

**Measures:**
- Temperature

**Barcode:** TLL 374, 379

**Manufacturer:** Extech

**Model:** 421509

**Description:**
Two K type bead wire temperature probes, windows software and RS232 cable.
CARBON MONOXIDE
HOBO DATA LOGGER

MEASURES: Carbon Monoxide
BARCODE: TLL 45
MANUFACTURER: Onset
MODEL: H11-001

DESCRIPTION: Set the interval time level for recording data and this data logger will record approximately 32000 time stamped measurements in memory.

CARBON DIOXIDE (CO2) METER

MEASURES: Carbon dioxide (CO2) and temperature
BARCODE: TLL 62
MANUFACTURER: TIF
MODEL: TIF 8600

DESCRIPTION: Measures the presence of CO2 in the air. Can be used to assist in checking the performance of ventilation systems and for commissioning procedures.

AIR FLOW HOOD

MEASURES: Air flow
BARCODE: TLL 79, 289
MANUFACTURER: Alnor
MODEL: EBT721

DESCRIPTION: An ergonomically-designed electronic balancing tool, it features a detachable multi-purpose digital manometer that can be used with a variety of common test and balance tools, such as pitot, air foil, temperature, RH/temperature probes or a 16 point velocity matrix.

DUCT BLASTER

MEASURES: Air tightness
BARCODE: TLL 100, 101, 203, 355, 361, 362
MANUFACTURER: Minneapolis Energy Conservatory
MODEL: DUCTD7

DESCRIPTION: The Duct Blaster is a calibrated air flow measurement system designed to test and document the air tightness of forced air duct.

BLOWER DOOR

MEASURES: Air tightness
BARCODE: TLL 123, 268, 354, 365, 366, 367
MANUFACTURER: Minneapolis Energy Conservatory
MODEL: BD3ALSD7#

DESCRIPTION: The Blower Door is a calibrated air flow measurement system designed to test and document the air tightness of an entire building. Air tightness is measured by pressurizing the building envelope and precisely measuring the fan flow and pressure.

AIR HANDLER FLOW METER

MEASURES: Air Flow
BARCODE: TLL 80, 81
MANUFACTURER: Minneapolis Energy Conservatory
MODEL: True Flow

DESCRIPTION: The Air Handler Flow Meter is designed to provide a simple and accurate measurement of air flow through residential air handlers.
ULTRASONIC LEAK DETECTOR

**MEASURES:** Detects any pressurized gas leak

**BARCODE:** TLL 111

**MANUFACTURER:** Amprobe

**MODEL:** UT100

**DESCRIPTION:** Detects arching in electrical system. Useful in finding the ends of buried PVC pipes and air tightness of cars and houses. Detects any pressurized gas leaks regardless of type CFC’s, HFC’s Nitrogen, etc. Transmitter “pressurizes” area with ultrasonic sound enabling the ULD-300 to pinpoint leaks.

HALOGEN LEAK DETECTOR

**MEASURES:** Detects all Halogenated refrigerants.

**BARCODE:** TLL 295

**MANUFACTURER:** TIF

**MODEL:** TIF

**DESCRIPTION:** Detects all Halogenated refrigerants.

VOC GAS SENSOR

**MEASURES:** Gas levels

**BARCODE:** TLL 291

**MANUFACTURER:** Eco Sensors

**MODEL:** C-21

**DESCRIPTION:** Wherever indoor air quality monitoring is required: the Eco Sensors® Model C-21 gas sensor helps you comply with the new VOC air quality regulations for hydrocarbon gases and solvent vapors.

ULTRASONIC FLOW METER

**MEASURES:** Flow

**BARCODE:** TLL 204

**MANUFACTURER:** Omega

**MODEL:** FD613

**DESCRIPTION:** The FD613 Series Ultrasonic Flow Meter features advanced Trans-Phase measuring technology, providing accurate and reliable flow velocity assessments in closed piping systems. The FD613 utilizes a non-invasive clamp-on transducer which is placed on the outside of a pipe. This product operates on metal or plastic pipes containing liquids with more than 100 ppm of 100 micron or larger suspended solids or entrained gases.

DIGITAL HVAC ANALYZER

**MEASURES:** Temperature, humidity, dew point, velocity, volume and measures power in BTU/HR

**BARCODE:** TLL 296

**MANUFACTURER:** TIF

**MODEL:** VA500A

**DESCRIPTION:** More than just an Anemometer, the VA500A measures all HVAC inlet and outlet variables, allowing an intelligent analysis of system performance.

SUPER FOGGER

**MEASURES:** N/A

**BARCODE:** TLL 266

**MANUFACTURER:** Visual Effects Inc

**MODEL:** Super Fogger V950

**DESCRIPTION:** This “super fogger” can be used to aid in duct leakage testing.
ULTRASONIC LEAK DETECTOR

MEASURES: Ultra-sensitive electronic circuitry detects sounds significantly beyond the range of the human ear

DESCRIPTION: Ideal for detecting: compressed air leaks, vacuum leaks, gear and bearing wear, natural gas and propane tank leaks, electrical discharge, refrigerant leaks, gas and liquid turbulence, seal and gasket integrity... and more.

BARCODE: TLL 200, 298

MANUFACTURER: Spectroline

MODEL: S-SCM-M005

ASHCROFT PRESSURE GAUGE SENSOR

MEASURES: Air, fluid, gas and water pressures

DESCRIPTION: The 200-psig Ashcroft Gauge Pressure Sensor provides precision pressure measurements in compressed air systems, water, or other compatible gases and fluids. This sensor requires the FlexSmart Analog Module.

BARCODE: TLL 324, 323, 322, 320, 319, 318, 317, 325, 326, 321, 358, 359

MANUFACTURER: Onset

MODEL: T-ASH-G2-200

PANS AND POLES

MEASURES: N/A

DESCRIPTION: The fastest, easiest and safest way to seal registers for duct leakage testing is using a method called "pans and poles." The most important benefit is that this method is faster and doesn't require cumbersome and dangerous ladders.

BARCODE: Pans TLL 360, 364 Poles TLL 311, 312, 316

MANUFACTURER: Sierra Building Scientific

MODEL: N/A

CO2 METERS

MEASURES: CO2, temp, RH, dew point, and wet bulb temp.

DESCRIPTION: This hand held unit measures: CO2, temperature, relative humidity, dew point, and wet bulb temperature.

BARCODE: TLL 370, 371, 372

MANUFACTURER: Amprobe

MODEL: CO2-100

EXHAUST FAN FLOW METER

MEASURES: Airflow

DESCRIPTION: Smaller, lighter and easier to use than conventional flow measuring hoods, the Exhaust Fan Flow Meter was specifically engineered to measure flow down to 10 cfm. When the Exhaust Fan Flow Meter is placed over a fan grill, air is drawn through the calibrated opening.

BARCODE: TLL 287

MANUFACTURER: The Energy Conservatory

MODEL: N/A

VALVE MANIFOLD

MEASURES: Calibration PSI, refrigerant R-22, R-410A and R-404 A

DESCRIPTION: 1/4" SAE manifold port connections color coded signals. 3 - 60" charging lines with low loss ball valve shut off. Calibration PSI for use with refrigerant, R-22, R-410A and R - 404 A.

BARCODE: TLL 376, 377

MANUFACTURER: N/A

MODEL: 421 C

CO2 METERS

MEASURES: CO2, temp, RH, dew point, and wet bulb temp.

DESCRIPTION: This hand held unit measures: CO2, temperature, relative humidity, dew point, and wet bulb temperature.

BARCODE: TLL 370, 371, 372

MANUFACTURER: Amprobe

MODEL: CO2-100

VALVE MANIFOLD

MEASURES: Calibration PSI, refrigerant R-22, R-410A and R-404 A

DESCRIPTION: 1/4" SAE manifold port connections color coded signals. 3 - 60" charging lines with low loss ball valve shut off. Calibration PSI for use with refrigerant, R-22, R-410A and R - 404 A.

BARCODE: TLL 376, 377

MANUFACTURER: N/A

MODEL: 421 C
AIR, WATER AND GAS FLOW

**BACHARACH PORTABLE COMBUSTION ANALYZER, DIGITAL**

**MEASURES:**
Combustion, ambient, flue gas temp., oxygen, carbon monoxide (CO), and draft and differential pressure

**MODEL:**
247308

**DESCRIPTION:**
Self-calibrating 5-in-1 instruments analyze steady state combustion and efficiency of 8 fuels. Measure combustion, ambient, and flue gas temp., oxygen, carbon monoxide (CO), and draft and differential pressure. Calculate carbon dioxide (CO2), CO air free, and excess air. Selectable fuel.

**BARCODE:**
TLL 393

**MANUFACTURER:**
Fyrite® Insight

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**TEL TRU SMOKE PUFFERS**

**MEASURES:**
N/A

**MODEL:**
#15-080 T-T Dura Puffer

**DESCRIPTION:**
Puffers produce a smoke stream that makes it easy for you to see invisible air leaks in ductwork and thermal envelopes.

- Test for: Air-flow Direction
- Room and building Leak location
- Duct Leakage
- Energy wasting house leaks
- Room pressure imbalances
- Pressure neutralization
- Backdraft, spillage and heat exchanger leaks

**BARCODE:**
TLL 401-412

**MANUFACTURER:**
Tel Tru / Thermo Scientific

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**INSULATION GRABBER**

**MEASURES:**
Depth

**MODEL:**
N/A

**DESCRIPTION:**
Insulation Grabber is easy to use. Verifies insulation depth quickly. Grabs EXACTLY ONE square foot at a time! Fits between 16" OC ceiling joists. Perfect for HERS Quality Insulation Installation verification of insulation.

**BARCODE:**
TLL 452

**MANUFACTURER:**
Sierra Building Science Inc.

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**INFRARED (IR) REFRIGERANT LEAK DETECTOR**

**MEASURES:**
Senses refrigerant level change

**MODEL:**
SRL2K7

**DESCRIPTION:**
Gases measured: CFC, HFC, HCFC& blends. Sensing element: Infrared. Auto recalibration. Response time: Less than 1/2 second to 1 second. Sensitivity levels:
- HIGH: 0.1 oz/yr & higher. (per SAE J2791)
- MEDIUM: 0.5 oz/year and higher.
- LOW: 1.0 oz/year and higher

**BARCODE:**
TLL 467

**MANUFACTURER:**
Fieldpiece

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**CO MONITOR**

**MEASURES:**
CO levels

**MODEL:**
CM100

**DESCRIPTION:**
This meter detects the presences of CO in the environment and displays the reading in PPM.

**BARCODE:**
TLL 385, 386

**MANUFACTURER:**
Amprobe

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**FIELD CALIBRATION PLATE FOR THE DUCT BLASTER**

**MEASURES:**
Duct leakage

**MODEL:**
N/A

**DESCRIPTION:**
Used to perform a field calibration check on the Series B Minneapolis Duct Blaster System with a DG-700 gauge.

**BARCODE:**
TLL 466, 494

**MANUFACTURER:**
Minneapolis – The Energy Conservatory
Energy Education Center Tulare

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Energy Education Center
Irwindale
6090 N. Irwindale Avenue,
Irwindale, CA 91702

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