

- Onset's most flexible logger records up to 15 channels
- The HOBO Energy Logger Pro accepts up to three two-channel modules and six plug-and-play Smart Sensors (some sensors measure more than one parameter)
- Provides 12v excitation for third-party sensors
- Pre-configured Smart Sensors for fast setup
- Signal conditioning modules retain configurations until you change them, providing plug-and-play convenience for commonly used sensors
- Flexible power options include battery operation or AC power adapter
- See onsetcomp.com for application and specific system diagrams



HOBO Energy Logger Pro

H22-001

15.4 x 9.4 x 5.1 cm

(6.06 x 3.69 x 2.00 in)

418.7 g (14.77 oz)

Temperature

Relative Humidity (RH)

AC Current (True RMS)

AC Voltage (True RMS)

DC Current

kW

kWh

Gauge Pressure

Differential Air Pressure

CO₂

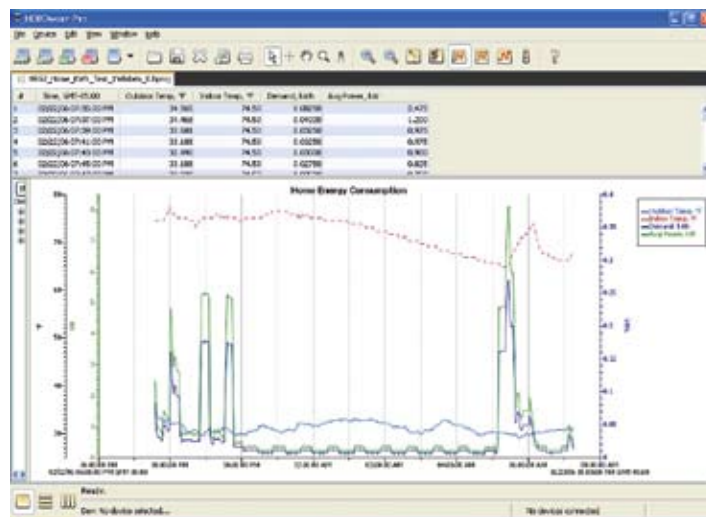
Pulse inputs from electric, gas or flow meters

Other third-party sensors via

4-20 mA/0-20 VDC

Solar Radiation

Wind Speed/Direction



HOBOWare® Pro Software provides easy logger launch, data readout, and plotting.

Memory: Up to 512,000 measurements, number varies based on sensor selection
 Sample rate: 1 second to 18 hours, user-selectable
 Battery life: 1-year typical, based on 75mA sensor excitation, 1 second-warmup time, and 10-minute logging interval—user-replaceable, AC adapter (optional)

Ideal for Building Commissioning
 LEED Projects
 Compressed Air Auditing
 Energy Management & Facilities Management
 HVAC/R Diagnostics
 IAQ Projects
 Chiller Optimization
 M&V Projects
 Performance Verification
 Renewable Energy Installations

See pages 19 and 20 for external sensors and attachment accessories.

HOBO Energy Logger Pro Modules/Sensors

onset

- Two input channels of AC Current and/or Voltage
- Measures True RMS for accurate readings of sinusoidal and non-sinusoidal waveforms
- Range: 5mV to 512mV input
- Accuracy: $\pm 0.3\%$ of reading $\pm 0.5\%$ FSR



**FlexSmart™
TRMS Module**
S-FS-TRMSA



AC Voltage
T-MAG-SPT-XXX

Ranges: 0-150, 0-300, 0-600 volts
Accuracy: $\pm 1\%$ (from 10% to 130% of rated voltage)



AC Current
T-MAG-SCT-XXX

Ranges: 0-5, 0-20, 0-50, 0-100, 0-200, 0-600 Amps
Accuracy: $\pm 1\%$ (from 10% to 130% of rated current)

- Two input channels of 0-20 mA and/or 0-20 VDC
- Provides 12V sensor excitation and user-configurable warm-up
- Accuracy: $\pm 0.25\%$ FS



**FlexSmart™
Analog Module**
S-FS-CVIA



kW Transducer
T-VER-8044-100

Self-contained unit includes split-core AC current transformers and voltage leads to provide kilowatts of power
Range: 3 phase, 50/60 Hz, 480 VAC, 0 to 100 Amps
Accuracy: $\pm 1\%$ per ANSI C12.1 (from 10% to 100% of CT rating)



Gauge Pressure
T-ASH-G2-XXX

Ranges: 0-100, 0-200, 0-500 psig
Accuracy: $\pm 1\%$ of span from -20° to 85°C (-4° to 185°F)



Differential Pressure
T-SET-265-XXX

Range: 0-0.25in, 0-1in, 0-2.5in, 0-5in, 0-10in WC
Accuracy: $\pm 1\%$ FS



Carbon Dioxide/Temp
TEL-7001

Ranges: 0 to 4000 ppm CO₂, 0° to 40°C (32° to 104°F)
Accuracy: ± 50 ppm or $\pm 5\%$ of reading ; $\pm 1^\circ\text{C}$ ($\pm 2^\circ\text{F}$)
Requires CABLE-2070 for use with Analog Module.



**Duct-Mount
Humidity/Temp**
T-VAI-HMD-40Y

Ranges: 10 to 90% RH,
Temp: -10° to 60°C (14° to 140°F)
Accuracy: better than $\pm 3\%$ RH @ 25°C (77°F); $\pm 0.3^\circ$ temp @ 25°C ($\pm 0.54^\circ$ @ 77°F)



**Split Core DC
Current Transducer**
T-VER-H970-080

Ranges: 0-20/40/80 ADC slide switch selectable
Accuracy: $\pm 3\%$ FS combined linearity, hysteresis and repeatability

HOBO Energy Logger Pro Sensors and Accessories

- **Pulse Input Adapter is compatible with electronic switch closures, such as FET or open collector outputs, or CMOS-level logic signals**
- **Accepts both kWh transducers below, as well as flow meters, power meters, and gas meters with pulse outputs**
- **Maximum input frequency: 120 Hz**



Pulse Input Adapter
S-UCC-M006



kWh Transducer
T-VER-805X-XXX



kWh Transducer
T-WNA-3X-XXX

Self-contained unit includes split-core AC current transformers and voltage leads to provide kilowatt hours of energy used.
Requires Pulse Input Adapter (S-UCC-M006).

Ranges: 208 to 480 VAC, 300 Amps, 1-phase
208 to 480 VAC, 800 Amps, 3-phase

Works with CTs (T-MAG-SCT-XXX) to provide True RMS kilowatt hours of energy used, even for loads with non-sinusoidal waveforms.

Requires Pulse Input Adapter (S-UCC-M006).

Ranges: 208/240 VAC and 480 VAC $\pm 15\%$ Delta and Wye systems
Accuracy: $\pm 0.45\%$ of reading $\pm 0.05\%$ FS through 25th harmonic

- **Plug-and-play Smart Sensors are automatically recognized by the logger**



Temperature/RH Smart Sensor
S-THB-M00x
cable lengths available
2 m, 8 m, (6.5 ft, 26 ft)

Ranges: -40° to 75°C (-40° to 167°F)
RH from -40° to 75°C (-40° to 167°F)
Accuracy: $\pm 0.2^{\circ}$
RH over the range of 10 - 90% RH
Resolution: 0.02° @ 25°C (0.04° @ 77°F); 0.1% RH @ 25°C (77°F)
Response time: Temp: 8 minutes, RH: 5 minutes
(to 90% in airflow of 1 m/s)
Data channels: 2
Solar radiation shield (RS3) recommended for accurate temperature measurements in sunlight.



12-bit Temperature Smart Sensor
S-TMB-M0xx
2 m, 6 m, 17 m
cable lengths available
(6.5 ft, 20 ft, 56 ft)

Range: -40° to 75°C (-40° to 167°F)
Accuracy: $\pm 0.2^{\circ}$ from 0° to 50°C ($\pm 0.36^{\circ}$ from 32° to 122°F)
Resolution: 0.03° from 0° to 50°C (0.054° from 32° to 122°F)
Environment: Sensor tip and cable rated for 1-year immersion in fresh water $\leq 50^{\circ}\text{C}$ (122°F)
Response time: < 2 minutes (to 90% in airflow of 1 m/s)
Solar radiation shield (RS3) recommended for accurate temperature measurements in sunlight.



AC Power Adapter
P-AC-1

Switched supply powers HOBO Energy Logger Pro from AC power sources (100 to 240 VAC, 50 or 60 Hz).

HOBO Energy Logger Pro - Ordering

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HOBO Energy Logger Pro Ordering Information

HOBO Energy Logger Pro	H22-001
FlexSmart™ TRMS Module	S-FS-TRMSA
FlexSmart™ Analog Module	S-FS-CVIA

Magnelab AC Voltage

0-150 Volt	T-MAG-SPT-150
0-300 Volt	T-MAG-SPT-300
0-600 Volt	T-MAG-SPT-600

Sensors

Smart Sensors (plug-and-play, no module required).

See catalogue for additional weather-related Smart Sensors.

12-bit Temperature

2-m cable	S-TMB-M002
6-m cable	S-TMB-M006
17-m cable	S-TMB-M017

12-bit Temp/RH

2-m cable	S-THB-M002
8-m cable	S-THB-M008

Pulse Input adapter

S-UCC-M006

WattNode kWh

Pulse Input Adapter required.

Wye config 208/240	T-WNA-3Y-208
Wye config 480	T-WNA-3Y-480
Delta config 208/240	T-WNA-3D-240
Delta config 480	T-WNA-3D-480

Veris kWh

Pulse Input Adapter required.

1-phase, 300 Amp	T-VER-8051-300
3-phase, 800 Amp	T-VER-8053-800

True RMS Current and Voltage

FlexSmart TRMS Module required (Part #S-FS-TRMSA).

Magnelab Split-Core AC Current (also used with WattNode)

0-5 Amp	T-MAG-SCT-005
0-20 Amp	T-MAG-SCT-020
0-50 Amp	T-MAG-SCT-050
0-100 Amp	T-MAG-SCT-100
0-200 Amp	T-MAG-SCT-200
0-600 Amp	T-MAG-SCT-600

Analog Input Sensors

These sensors require a FlexSmart Analog Module (Part #S-FS-CVIA).

Veris kW	T-VER-8044-100
Ashcroft Gauge Pressure	
100 psig	T-ASH-G2-100
200 psig	T-ASH-G2-200
500 psig	T-ASH-G2-500
Setra Differential Air Pressure	
0.25 in WC	T-SET-265-R25
1 in WC	T-SET-265-001
2.5 in WC	T-SET-265-2R5
5 in WC	T-SET-265-005
10 in WC	T-SET-265-010

Vaisala Duct-Mount RH/Temp

T-VAI-HMD-40Y

Telaire CO₂/Temp

TEL-7001

Cable CO₂/Temp to Module

CABLE-2070

DC Current

0-80 Amp

T-VER-H970-080

Accessories

Mounting Feet Kit	A-H22-MOUNT-1
DIN Mount Kit	A-H22-DINMOUNT-1
AC power adapter	P-AC-1

Smart Sensor Extension Cables

(total cable length of all sensor cables is 100 m (300 ft).)

5-m length	S-EXT-M005
10-m length	S-EXT-M010
25-m length	S-EXT-M025
1-to-2 Sensor Adapter*	S-ADAPT-5

* When used with Smart Sensor Extension Cables, this allows a single smart sensor input to branch to two Smart Sensors.

Software and Communications

Software*

HOBOWare Pro Software (Windows®)	BHW-PC
HOBOWare Pro Software (Mac®)	BHW-MAC
Serial Interface Cable	CABLE-PC-3.5
USB Serial Adapter	CABLE-USB232

Optional Communications

HOBO U-Shuttle	U-DT-1
Serial to Ethernet Server	SERVER-DS202

Complete system requires logger, sensor, software and communications.