HOBO® H22-001 Energy Logger

Logs

- **AC Current**
- **Temperature**
- **Relative Humidity**
- **DC Voltage**
- **4 -20 mA**
- **AC Voltage**
- **Carbon Dioxide**
- **DC Current**
- **Kilowatt Hours**
- **Killowatts**

- **The HOBO Energy Logger is a modular, reconfigurable data logging system for Energy and Industrial monitoring applications. The 15-channel logger accepts up to three two-channel modules and six plug-and-play Smart Sensors (some sensors measure more than one parameter)**

- **Provides 12 volt excitation for third-party sensors**

- **Accepts pre-configured Smart sensors for fast set-up**

- **Signal conditioning modules retain configurations until changed, providing plug-and-play convenience for commonly used sensors**

- **Flexible power options include battery operation or AC power adaptor**

- **Powerful HOBOware software makes set-up and deployment fast and easy**

- **System capabilities can be expanded with Ethernet or remote data access communications**

Available Measurements:	
AC Current	AC Voltage
Temperature	Carbon Dioxide
Relative Humidity	DC Current
DC Voltage	Kilowatt Hours
4 -20 mA	Kilowatts

Measurement, Control, and Datalogging Solutions

Specifications:

- 512K non-volatile flash data storage
- Memory modes: Stop when full, Wrap around when full
- Operational indicators: 6 indicators provide logging and sensor network status
- 1 second to 18 hours, user specified interval (2 second minimum for two chan. S-FS-TRMSA)
- Sensor excitation: 12V DC at 200mA total
- Battery life: 1 year typical use (up to 75 mA excitation,10 minute interval, 1 sec warm-up time)
- Immediate, Push-button, or Delayed-start logger start modes
- Battery type: 8 standard AA alkaline batteries included (for operation at -20ºC to +50ºC)
  Optional AA lithium batteries available for operation at -40ºC to +140ºC)
  AC Power: Optional 13.6V DC regulated AC adaptor (internal batteries to remain installed).
- Time Accuracy: 0 to 2 seconds for first data point and ±5 seconds per week at 25ºC
- Logging Mode: immediate, timed delay, or trigger (button push) start operation, supports sampling operation for some sensors
- Data communication: Current readings while logging, read out while logging, readout when stopped
- Operating Range: -20ºC to +50ºC with alkaline batteries, -40ºC to +140ºC with optional AA lithium batteries.
- Communication: RS-232 via 3.5 mm serial port or/and 9-pin D-Sub connector
- Sensor connectors: 6 off RJ-12 Smart Sensor jacks plus 3 FlexSmart module slots (which may have multiple parameters/channels)
- Dimensions: 156 x 84 x 46 mm   Weight: 435 g

HOBO Energy Logger

Battery operated, supplied without modules and sensors
Order Code: H22-001

AC Power Adaptor (100 to 240 VAC, 50 or 60 Hz supplied with European and UK adaptors)
Order Code: P–AC–1

FlexSmart TRMS Module	**Order Code: S–FS–TRMSA**
FlexSmart Analogue Module	**Order Code: S–FS–CVIA**

Temperature/RH Sensors

Range: -40ºC to +75ºC (Temp Sensor)
Accuracy: ± 0.2ºC (0 to +50ºC)
Ranges: -40 to +75ºC (Temp/RH Sensor)
            10 to 90% RH
Accuracy: ± 0.2ºC (0 to +50ºC)

12-bit Temperature Sensor with 2m cable	**Order Code: S-TMB-M002**
12-bit Temperature Sensor with 6m cable	**Order Code: S-TMB-M006**
12-bit Temperature Sensor with 17m cable	**Order Code: S-TMB-M017**
12-bit Temperature/RH Sensor with 2m cable	**Order Code: S-THB-M002**
12-bit Temperature/RH Sensor with 8m cable	**Order Code: S-THB-M008**

Measurement, Control, and Datalogging Solutions

Pulse Input Adaptor

Connects pulse output sensors to Smart-sensor inputs. 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). **Order Code: S–UCC–M006**

WattNode kWh (requires Pulse Input Adaptor Order Code: S-UCC-M006)

The WattNode Delta-connection kWh Transducer works with Magnelab AC Current Transformers and a Pulse Input Adapter to provide True RMS kilowatt hours of energy used, even for loads with non-sinusoidal waveforms. Accuracy: 1.5% to 4% of reading (dependent on CT used and line variation).

WattNode 208/240 VAC 3-phase Delta kWh Transducer	**Order Code: T-WNB-3D-240**
WattNode 480 VAC 3-phase Delta/Wye kWh Transducer	**Order Code: T-WNB-3D-480**
WattNode 208/240 VAC 3-Phase Wye kWh Transducer	**Order Code: T-WNB-3Y-208**

Veris kWh (requires Pulse Input Adaptor Order Code: S-UCC-M006)

The Veris AC kWhTransducer incorporates one split-core AC current sensor and two voltage leads and outputs a signal proportional to kilowatts of power (consumption). With an input voltage of 208 to 480 Volts AC rms, this transducer requires a Pulse Input Adapter. Accuracy: ±1%

1 – phase, 300 Amp	**Order Code: T-VER-8051-300**
3 – phase, 800 Amp	**Order Code: T-VER-8051-800**

True RMS Current and Voltage (requires FlexSmart TRMS Module Order Code: S-FS-TRMSA)

The Magnelab AC Current 0-5 Amp AC Current Transformer (CT) is mounted around a current carrying wire to measure AC Amperage. This CT provides 333mV output proportional to current and is used with the FlexSmart TRMS Module for True RMS measurement of sinusoidal and non-sinusoidal waveforms. One or two CTs can be used with each FlexSmart TRMS Module. Accuracy: ± 1% (from 10% to 130% rated voltage)

Magnelab Split-Core AC Current 0-5 Amp	**Order Code: T-MAG-SCT-005**
Magnelab Split-Core AC Current 0-20 Amp	**Order Code: T-MAG-SCT-020**
Magnelab Split-Core AC Current 0-50 Amp	**Order Code: T-MAG-SCT-050**
Magnelab Split-Core AC Current 0-100 Amp	**Order Code: T-MAG-SCT-100**
Magnelab Split-Core AC Current 0-200 Amp	**Order Code: T-MAG-SCT-200**
Magnelab Split-Core AC Current 0-600 Amp	**Order Code: T-MAG-SCT-600**

Magnelab AC Voltage (requires FlexSmart TRMS Module Order Code: S-FS-TRMSA)

The Magnelab 150-Volt AC Potential Transformer is used with the FlexSmart TRMS Module to provide accurate measurement of AC voltage. One or two PTs can be used with each FlexSmart TRMS module. Accuracy ±1% (from 10% to 130% of rated voltage).

0 – 50 Volt	**Order Code: T-MAG-SPT-150**
0 – 300 Volt	**Order Code: T-MAG-SPT-300**
0 – 600 Volt	**Order Code: T-MAG-SPT-600**

Veris kW Kilowatt Transducer (requires FlexSmart Analog Module Order Code: S-FS-CVIA)	
	The Veris AC Kilowatt Transducer incorporates three split-core AC current sensors and three voltage leads and outputs a signal proportional to kilowatts of power (demand). With an input voltage of 480 Volts AC rms, this transducer requires a FlexSmart Analog Module. Accuracy ±1%
480 V, 100 Amp Kilowatt Transducer	**Order Code: T-VER-8044-100**

Ashcroft Gauge Pressure Sensor (requires FlexSmart Analog Module Order Code: S-FS-CVIA)	
	The Ashcroft Gauge Pressure Sensor provides precision pressure measurements in compressed air systems, water, or other compatible gases and fluids with an accuracy of ±1% FS from -20° to 85°C and only ±1.5% FS -40° to -20°C and 85° to 125°C
0 – 100 psig	**Order Code: T-ASH-G2-100**
0 – 200 psig	**Order Code: T-ASH-G2-200**
0 – 500 psig	**Order Code: T-ASH-G2-500**

Setra Differential Air Pressure (requires FlexSmart Analog Module Order Code: S-FS-CVIA)	
	Setra Differential Air Pressure ± 1 % Accuracy
0 – 0.25" WC	**Order Code: T-SET-265-R25**
0 – 1" WC	**Order Code: T-SET-265-001**
0 – 2.5" WC	**Order Code: T-SET-265-2R5**
0 – 5" WC	**Order Code: T-SET-265-005**
0 – 10" WC	**Order Code: T-SET-265-010**

Ductmount RH/Temp Transmitter (requires FlexSmart Analog Module Order Code: S-FS-CVIA)	
	The Vaisala Duct-mount RH/Temp temperature and humidity transmitter offers reliable operation and mounts to air ducts. It provides an RH measurement range of 10 to 90% RH and temperature measurement range of -10° to 60°C. Accuracy: Better than ± 3% RH @ 25ºC, ± 0.3ºC temp @ 25ºC
Ductmount RH/Temp Transmitter	**Order Code: T-VAI-HMD-40Y**

Carbon Dioxide/Temperature (requires FlexSmart Analog Module Order Code: S-FS-CVIA)	
	The Telaire 7001 Co_2 Monitor measures and displays CO_2 and temperature data simultaneously with a measurement range of 0 to 4000 ppm. Operates on 6 VDC from external AC/DC Adaptor or four AA batteries (not included). Measurement resolution ±1 ppm.
Telaire 7001 Carbon Dioxide/Temp Monitor	**Order Code: TEL-7001**
AC/DC Adaptor for UK use	**Order Code: UKPSU**
CO2 and Temp output cable to FlexSmart Analog Module	**Order Code: CABLE-2070**

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DC Current Transducer (requires FlexSmart Analog Module Order Code: S-FS-CVIA)

Range: 0-20/40/80 ADC slide-switch selectable
Sensor Supply Voltage: 12-24 VAC/DC - (12 volts supplied by logger module)
Accuracy: ±3% FS combined linearity, hysteresis and repeatability
4-20mA or 0-5VDC output signal to FlexSmart Analog Module:

Order Code: T-VER-H970-080

Order Codes

HOBO Energy Logger	**Order Code: H22-001**
AC Power Adaptor (European & UK)	**Order Code: P–AC–1**
FlexSmart TRMS Module	**Order Code: S–FS–TRMSA**
FlexSmart Analogue Module	**Order Code: S–FS–CVIA**

Accessories

Mounting Feet Kit	**Order Code: A – H22 – MOUNT – 1**
DIN Mount Kit	**Order Code: A – H22 – DINMOUNT – 1**
AC Power Adaptor	**Order Code: P – AC – 1**
Smart Sensor Extension Cable (length 5m)	**Order Code: S – EXT – M005**
Smart Sensor Extension Cable (length 10m)	**Order Code: S – EXT – M010**
Smart Sensor Extension Cable (length 25m)	**Order Code: S – EXT – M025**
1 – to – 2 Sensor Adaptor (when used with Smart Extension Cables allows a single Smart Sensor input to branch to two Smart Sensors	**Order Code: S – ADAPT – 5**

Software

HOBOware PRO Software	**Order Code: BHW–PRO-CD**
Serial Interface Cable	**Order Code: CABLE –PC–3.5**
USB Serial Adaptor	**Order Code: CABLE–USB232**

Optional Communications

HOBO U–Shuttle	**Order Code: U–DT–1**
Serial to Ethernet Server	**Order Code: SERVER–DS203**

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