







Comparison Chart						
	<b>HOBO Micro Station</b>  <b>H21-002</b>	<b>HOBO U30 Remote Monitoring System</b>			<b>HOBO U30 NRC</b>  <b>U30-NRC</b>	<b>HOBO Energy Logger</b>  <b>H22-001</b>
		<b>GSM</b>  <b>U30-GSM</b>	<b>Wi-Fi</b>  <b>U30-WIF</b>	<b>Ethernet</b>  <b>U30-ETH</b>		
<b>Remote Communications</b>	No	Yes	Yes	Yes	No	No
<b>Internet access to real-time data</b>	No	Yes	Yes	Yes	No	No
<b>Enclosure</b>	Weatherproof	Double weatherproof tamperproof	Double weatherproof tamperproof	Double weatherproof tamperproof	Double weatherproof tamperproof	Indoor
<b>Fully-integrated, expandable communications</b>	No	Yes	Yes	Yes	No	No
<b>* Solar or AC power with rechargeable batteries</b>	No	Yes*	Yes*	Yes*	Yes*	AC power option
<b>Optional analog inputs with configurable sensor power</b>	No	2	2	2	2	6
<b>Smart Sensor compatible</b>	Yes	Yes	Yes	Yes	Yes	Yes
<b># of inputs</b>	4	5 expandable to 15	5 expandable to 15	5 expandable to 15	5 expandable to 15	3 module ports and 6 sensor inputs
<b>USB connectivity</b>	Requires Adapter	Yes	Yes	Yes	Yes	Requires Adapter
<b>Operating Range</b>	- 20° to 50° C standard - 40° to 70° C with optional Lithium batteries	- 20° to 40° C normal operation - 40° to 60° C extended range (limitations)	- 20° to 40° C normal operation - 40° to 60° C extended range (limitations)	- 20° to 40° C normal operation - 40° to 60° C extended range (limitations)	- 20° to 40° C normal operation - 40° to 60° C extended range (limitations)	- 20° to 50° C standard - 40° to 70° C with optional Lithium batteries
<b>Battery Life Without Solar or AC power</b>	1 year (typical) (4AA)	30 days (1hr connection interval)	30 days (1hr connection interval)	30 days (1hr connection interval)	6 months (typical)	1 year (typical) (8AA)
<b>Data Storage Memory:</b>	512,000 kilobytes	Unlimited in HOBOLink	Unlimited in HOBOLink®	Unlimited in HOBOLink	512,000 kilobytes	512,000 kilobytes

\* Solar panel or AC adapter purchased separately.



**HOBO Micro Station**  
**H21-002**  
 8.9 x 11.4 x 5.4 cm  
 (3.5 x 4.5 x 2.125 in)  
 0.5 kg (1 lb)

The HOBO Micro Station offers reliable monitoring performance at industry-leading prices. Designed for stand-alone data logging applications, the 4-channel HOBO Micro Station accepts Onset's full suite of plug-and-play Smart Sensors, and is battery-powered for up to one year.

### Key Advantages:

- Improved weatherproof enclosure for harsh environments
- Compact and low-cost with 4 sensor inputs
- Up to 2 DC voltage or 4-20mA input adapters

### Common Specifications

Memory:	512K non-volatile data storage
Logging interval:	1 second to 18 hours, user-selectable
Battery life:	1 year (typical) — up to 10 sensors with 10-minute or longer logging interval
Operating range and battery type:	-20° to 50°C (-4° to 122°F) 4-AA alkaline batteries (standard) -40° to 70°C (-40° to 158°F) 4-AA lithium batteries (optional)
Sensor network cable length:	100 m (328 ft) maximum



## HOBO Micro Station Ordering Guide

HOBO Micro Station Logger H21-002  
 HOBO Micro Station Mast Mounting Kit M-MKA  
 HOBO Micro Station Grounding Wire CABLE-HWS-G  
*(required for Wind Speed/Direction sensor or tripod mounting)*

### Smart Sensor Ordering

Temperature/RH:  
 2 m cable S-THB-M002  
 8 m cable S-THB-M008  
 Temperature:  
 2 m cable S-TMB-M002  
 6 m cable S-TMB-M006  
 17 m cable S-TMB-M017  
 Wind Speed/Direction S-WCA-M003  
 Wind Speed S-WSA-M003  
 R.M. Young Wind Sensor Adapters:  
 Wind Monitor AQ S-WCB-M003  
 Marine Wind Monitor S-WCC-M003  
 Wind Sentry S-WCD-M003  
 Wind Alpine S-WCE-M003  
 Rain Gauge Aluminum: (.01 in)  
 2 m cable S-RGA-M002  
 Rain Gauge Aluminum: (0.2 mm)  
 2 m cable S-RGB-M002  
 Soil Moisture (EC-5) S-SMC-M005  
 Soil Moisture (10HS) S-SMD-M005  
 Leaf Wetness S-LWA-M003  
 PAR S-LIA-M003  
 Silicon Pyranometer S-LIB-M003  
 Pulse Input Adapter:  
 -Electronic Switch S-UCC-M00x  
 -Contact Closure S-UCD-M00x  
 4-20mA Input Adapter S-CIA-CM14  
 0-5v DC Input Adapter S-VIA-CM14

### Sensor Mounting Accessories

Smart Sensor Extension Cables limited to 100 m of total cable length per logger *(optional for use individually or combined)*.  
 5 m length S-EXT-M005  
 10 m length S-EXT-M010  
 25 m length S-EXT-M025

### Sensor Mounting Accessories (continued)

Weatherproof Connection Housing S-EXT-CASE  
*(required for outside connections)*  
 Half Cross Arm M-CAB  
*(recommended for use with wind sensors)*  
 Solar Radiation Shield RS3  
*(for use with temperature and temp/RH sensors)*  
 Light Sensor Bracket M-LBB  
*(for mounting PAR and solar radiation sensors on masts or flat vertical surfaces)*  
 NDVI Light Sensor Bracket M-NDVI  
 Light Sensor Level M-LLA  
*(recommended for installing PAR and solar radiation sensors)*

### Tripod/Masts and Accessories

2 m Tripod with Mast  
*(M-SKB recommended)* M-TPB  
 Complete 2 Meter Tripod Kit M-TPB-KIT  
 3 m Tripod with Mast  
*(M-SKA recommended)* M-TPA  
 Complete 3 m Tripod Kit M-TPA-KIT  
 1.5 m Mast M-MPB  
 3 m Mast M-MPA  
 Guy Wire Kit M-GWA  
 1/4 in Stake Kit M-SKB  
 1/2 in Stake Kit M-SKA  
 Grounding Kit M-GKA  
 2 m Weatherproof Comm. Cable CABLE-HWS2  
 17 m Weatherproof Comm. Cable CABLE-HWS17  
 Lithium Batteries, 4 pack HWSB-LI  
 Mast Level M-MLA  
*(recommended for installing masts or tripods)*

### Software and Communications

HOBOWare Pro Software BHW-PRO-CD  
 USB-to-Serial-Cable ADAPT-SER-USB  
 U-Shuttle Data Transporter U-DT-1  
*HOBOWare includes USB interface cable.*

See page 57 for additional sensors





HOBO U30 systems provide real-time access to data from any web browser. Whether you're tracking climate conditions for field research, or measuring energy usage in a commercial building, HOBO U30 monitoring systems deliver accurate, dependable data right to your desktop via Onset's HOBOLink web-based software (see page 55 for details).

### Key Advantages:

- Web-based energy and environmental monitoring
- All electronics are housed within an industrial-grade, tamperproof enclosure
- Setup is quick and easy with plug-and-play sensors
- Measures a wide range of energy and environmental parameters
- GSM Cellular, Wi-Fi, Ethernet, direct USB options available
- Works with Onset's E50B2 Power & Energy Meter to measure Power Factor (PF), Reactive Power (VAR), Watt Hours (Wh) and more

### Industrial-grade dependability

HOBO U30 Remote Monitoring Systems deliver high accuracy measurements you can count on — in even the harshest environmental conditions. All at a fraction of the cost of competitive solutions.

Incorporating patented technology, all of the system's electronics are housed within a rugged double-weatherproof, tamperproof enclosure. This provides twice the protection and ensures years of reliable monitoring performance.

### Fast, easy deployment

Plug-and-play architecture enables



any combination of Smart Sensors to be plugged in without extensive user programming, wiring, or calibration.

Plug in your sensors, connect the battery, and you're streaming real time data!

Learn More:

See specifications on page 45

See pricing on pages 46-47

See page 55 to learn more about HOBOLink, a web-based software platform that provides access to the HOBO U30 Remote Monitoring Systems.

### Wide range of measurements

HOBO U30 systems measure and record a wide range of parameters including:

#### INDOOR ENVIRONMENTAL

- Temperature
- Relative Humidity
- CO2
- Air Velocity
- VOCs

#### ENERGY/POWER

- kW & kWh
- Power Factor
- Volt Amp Reactive Hour
- Watt Hours
- Amp Hours
- True Power
- AC/DC Current
- AC/DC Voltage
- Differential Pressure
- Gauge Pressure
- Compressed Air Flow
- Reactive Power
- Volts-Amps
- Amps

#### WEATHER

- Temp/RH
- Solar Radiation
- PAR
- Rainfall
- Wind Speed & Direction
- Wind Speed
- Soil Moisture
- Barometric Pressure
- Leaf Wetness

An optional analog sensor port provides sensor power with user-selectable warm-up time.

### Available models include:

#### HOBO U30/GSM



- Built-in GSM cellular means no IT road-blocks
- Double weather proof, tamperproof enclosure

#### HOBO U30/Wi-Fi



- Ruggedized hardware, with integrated Wi-Fi
- Get notified of problems via cell phone or email

#### HOBO U30/ETH




- Remote access to real-time data over Ethernet
- Simplifies facility-wide monitoring

#### HOBO U30/NRC



- Fast data offload via direct USB
- Optional analog inputs with sensor excitation

Specifications	
<b>GSM Wireless Communications</b>	Quad-Band GSM/GPRS 850/900/1800/1900 MHz
<b>Wi-Fi Wireless Communications</b>	2.412 - 2.484 GHz IEEE 802.11 b/g
<b>Ethernet</b>	10Base-T or 100Base-TX (using external RJ45 jack) 256-bit AES Rijndael encryption
<b>Alarm Relay</b>	Can be activated, deactivated or pulsed on user-defined sensor alarms. The relay can be configured as normally open or normally closed, (30V, 1A Max)
<b>Alarm Notification Latency</b>	Logging interval plus 2 to 4 minutes (typical)
<b>Certifications</b>	FCC Certified. Check <a href="http://www.onsetcomp.com">www.onsetcomp.com</a> for the latest certifications. 
<b>Smart-Sensor Inputs</b>	5 or 10
<b>Data Channels</b>	Maximum of 15 (some sensors use more than one data channel)
<b>Sensor Network Cable Length</b>	100 m (328 ft) maximum
<b>Normal Operating Range</b>	-20 to 40°C (-4 to 140°F)
<b>Extended Operating Range</b>	-40 to 60°C (-40 to 140°F) see battery life, Note: the GSM module will not communicate below -30°C (-22°F)
<b>Local Communication</b>	USB
<b>Data Storage Memory</b>	512K bytes local storage in non-volatile flash memory
<b>Operational Indicators</b>	LEDs show status
<b>Logging Interval</b>	1 minute to 18 hours, user-specified
<b>Station-to-Internet Upload Interval</b>	10 minutes minimum, user-specified (depends on HOBOLink data service plan)
<b>Power</b>	An Onset solar panel (1.2w, 3w, 6w) or AC adapter is required
<b>Battery Type</b>	4 Volt, 10 AHr, or 4.5 AHR Rechargeable Sealed Lead Acid
<b>Battery Life</b>	Typical 3-5 years depending upon conditions of use. Regular operation outside of the normal operating range will reduce battery life to 1-2 years.
<b>Environmental Rating</b>	Weatherproof; tested to NEMA 6
<b>Dimensions</b>	17.8 H x 11.7 D x 19.3 W cm (7.0 H x 4.6 D x 7.6 W inches)
<b>Weight</b>	2 kg (4.30 lbs.)
<b>Mounting</b>	Up to 1.63 in (4.1 cm) mast or wall mount
<b>Enclosure Access</b>	Hinged door secured by two latches, which can be further secured with user-supplied padlocks
Optional Analog Sensor Port	
<b>Inputs</b>	2 channels - User-configured as either 0-20 mA or 0-20 VDC
<b>Sensor Power</b>	Switched 12 VDC, up to 50 mA: user-selectable warm-up from 5 milliseconds to 2 minutes
<b>Scaling</b>	Linear scaling to user units
<b>Accuracy</b>	±0.25% full scale

Note: Some HOBO U30 models require high-speed internet access and a data plan with HOBOLink.com, an Onset-hosted and managed web service. See page 46 for more details.

<b>HOBO Remote Monitoring Systems with GSM Communications</b>	GSM Cellular to Internet	<b>U30-GSM</b>	- ____	- __	<b>-S100</b>	- ____
Sensor Port Options	No sensor port	<b>000</b>				
	2-channel analog sensor port	<b>VIA</b>				
Smart Sensor Input Options	5 smart sensor inputs	<b>05</b>				
	10 smart sensor inputs	<b>10</b>				
Battery Option	10 Ah rechargeable battery	<b>S100</b>				
Global Data Service (work with AT&T and T-Mobile networks in the US; includes HOBOLink service)*	20 minute calling (1 min log)	<b>303</b>				
	30 minute calling (1 min log)	<b>304</b>				
	20 calls per day (1 min log)	<b>305</b>				
T-Mobile-Only Plans (includes HOBOLink Service)*	10 minute calling (1 min log)	<b>102</b>				
	1 call per day (15 min log)	<b>105</b>				
AT&T-Only Plan (includes HOBOLink Service)*	10 minute calling (1 min log)	<b>202</b>				

See [onsetcomp.com](http://onsetcomp.com) for the latest selection of service plans.

\*Early termination fees apply. A 200 fee will be assessed for terminating the service plan within 30 days. No refund will be applied for terminating the plan after 30 days.

<b>HOBO Remote Monitoring Systems with Wi-Fi Communications**</b>	Wi-Fi to Internet	<b>U30-WIF</b>	- ____	- __	- ____	- ____
Sensor Port Options	No sensor port	<b>000</b>				
	2-channel analog sensor port	<b>VIA</b>				
Smart Sensor Input Options	5 smart sensor inputs	<b>05</b>				
	10 smart sensor inputs	<b>10</b>				
Battery Option	4.5 Ah rechargeable battery	<b>S045</b>				
	10 Ah rechargeable battery required when using analog sensor port for sensor power	<b>S100</b>				
HOBOLink Data Service	10 minute upload (1 sec log)	<b>001</b>				
	10 minute upload (1 min log)	<b>002</b>				
	1 hr uploads (5 min log)	<b>003</b>				

See [onsetcomp.com](http://onsetcomp.com) for the latest selection of service plans.

\*\*Pre-N routers are Preliminary and should not be used with U30 Wi-Fi Remote Monitoring Systems.

<b>HOBO Remote Monitoring Systems with Ethernet Communications</b>	Ethernet to Internet	<b>U30-ETH</b>	- ____	- __	- ____	- ____
Sensor Port Options	No sensor port	<b>000</b>				
	2-channel analog sensor port	<b>VIA</b>				
Smart Sensor Input Options	5 smart sensor inputs	<b>05</b>				
	10 smart sensor inputs	<b>10</b>				
Battery Option	4.5 Ah rechargeable battery	<b>S045</b>				
	10 Ah rechargeable battery required when using analog sensor port for sensor power	<b>S100</b>				
HOBOLink Data Service	10 minute upload (1 sec log)	<b>001</b>				
	10 minute upload (1 min log)	<b>002</b>				
	1 hr uploads (5 min log)	<b>003</b>				

See [onsetcomp.com](http://onsetcomp.com) for the latest selection of service plans.

<b>HOBO Remote Monitoring Systems without remote communications</b>	No remote communication	<b>U30-NRC</b>	- ____	- __	- ____	<b>-000</b>
Sensor Port Options	No sensor port	<b>000</b>				
	2-channel analog sensor port	<b>VIA</b>				
Smart Sensor Input Options	5 smart sensor inputs	<b>05</b>				
	10 smart sensor inputs	<b>10</b>				
Battery Options	4.5 Ah rechargeable battery	<b>S045</b>				
	10 Ah rechargeable battery required when using analog sensor port for sensor power	<b>S100</b>				
Data Plan	No data plan needed	<b>000</b>				

**Software (one required)**

HOBO U30 Shuttle  
HOBOWare Pro (Windows/Mac)

U-DT-2  
BHW-PRO-CD

See next page for Sensors and Accessories



## Power Source Options

**1.2 Watt Solar Panel** for sunny locations and/or locations with low data transfer requirements (readout every 2 hours or longer). SOLAR-1.2W

**3.0 Watt Solar Panel** for moderately sunny locations and/or medium data transfer requirements (such as hourly readout). SOLAR-3W

**6.0 Watt Solar Panel** for cloudy locations and/or high data transfer requirements (faster than 15 minute readouts). SOLAR-6W

**AC Power Adapter** (120V, 60Hz) for locations with AC power available. The adapter is not weatherproof. AC-U30

**AC Power Adapter (EU)** (240V, 50Hz) for locations with AC power available. The adapter is not weatherproof. AC-U30-EU

## Weather Sensors

Temperature	
2-m cable	S-TMB-M002
6-m cable	S-TMB-M006
17-m cable	S-TMB-M017
Temp/RH	
2-m cable	S-THB-M002
8-m cable	S-THB-M008
Wind Speed/Direction	S-WCA-M003
Wind Speed Sensor	S-WSA-M003
Rain Gauge: (0.01 in)	S-RGA-M002
Rain Gauge: (0.2 mm)	S-RGB-M002
Soil Moisture (EC-5)	S-SMC-M005
Soil Moisture (10HS)	S-SMD-M005
Leaf Wetness	S-LWA-M003
PAR	S-LIA-M003
Solar Radiation	S-LIB-M003
Barometric Pressure	S-BPB-CM50

## E50B2 Power & Energy Meter T-VER-E50B2

(requires 1 to 3 Pulse Input Adapters)  
Measurements: AC Current, AC Voltage, Amp Hour, Amps, Kilowatt Hours, Kilowatts, Power Factor, Volt-Amp Reactive, Volt-Amp Reactive Hour, Volt-Amps, Volts, Watt Hours, Watts

## Sensors that require Pulse Input Adapter

kWh	
Wye config 208/240	T-WNB-3Y-208
Wye config opt P3	T-WNB-3Y-208-P
Delta/Wye config 208/240	T-WNB-3D-240
Delta/Wye config 480	T-WNB-3D-480
"B" Series Voltage Lead Set	A-WNB-LEADSET
Veris kWh	
1-phase, 300 Amp	T-VER-8051-300
3-phase, 800 Amp	T-VER-8053-800
Water Flow Meter	T-MINOL-130

## Sensor Adapters

Pulse Input Adapter:	
-Electronic Switch	S-UCC-M00x
-Contact Closure	S-UCD-M00x

## Sensors that require Analog Sensor Port

Ashcroft Gauge Pressure	
100 psig	T-ASH-G2-100
200 psig	T-ASH-G2-200
500 psig	T-ASH-G2-500
Differential Air Pressure Transducer	
.01-10.0 WC	T-VER-PXU-L
.01-10.0 WC	T-VER-PXU-X
CO <sub>2</sub> /Temp	TEL-7001
CO <sub>2</sub> /Temp Port Cable	CABLE-2070
kW	T-VER-8044-100
Duct-Mount Temp/RH	T-VAI-HMD-40Y
DC Amperage	T-VER-H970-080
DC Current	
0-200 Amp	T-VER-H970-200
-200-200 Amp	T-VER-971BP-200
Air Velocity Sensor	
0.15-10 m/s	T-DCI-F900-L-P
0.15-5 m/s	T-DCI-F900-L-O
0.15-10 m/s	T-DCI-F900-S-P
0.15-5 m/s	T-DCI-F900-S-O
Compressed Air Flow Meter	
1-80 SCFM	T-CDI-5200-10S
3-350 SCFM	T-CDI-5400-20S

## Sensors that require True RMS Adapter

TRMS Module	S-FS-TRMSA-D
AC Amperage	
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
AC Amperage (mini CT)	
0-5 Amp	T-MAG-0400-05
0-10 Amp	T-MAG-0400-10
0-20 Amp	T-MAG-0400-20
0-50 Amp	T-MAG-0400-50
0-75 Amp	T-MAG-0400-75
AC Voltage	
0-150 Volt	T-MAG-SPT-150
0-300 Volt	T-MAG-SPT-300
0-600 Volt	T-MAG-SPT-600

## Adapters for R.M. Young Wind Monitoring Sensors

Wind Monitor AQ	S-WCB-M003
Marine Wind Monitor	S-WCC-M003
Wind Sentry	S-WCD-M003
Wind Alpine	S-WCE-M003

## Tripod/Masts and Accessories

2m Tripod with Mast (M-SKB recommended)	M-TPB
Complete 2 Meter Tripod Kit	M-TPB-KIT
3m Tripod with Mast (M-SKA recommended)	M-TPA
Complete 3 Meter Tripod Kit	M-TPA-KIT
3 m Mast	M-MPA
1.5 m Mast	M-MPB
Guy Wire Kit	M-GWA
1/4 in. State Kit	M-SKB
1/2 in. State Kit	M-SKA
Grounding Kit	M-GKA
<i>(does not provide protection from direct lightning strikes)</i>	
Mast Level	M-MLA
<i>(recommended for installing masts or tripods)</i>	
Half Cross Arm	M-CAB
<i>(recommended for use with wind sensors)</i>	
Solar Radiation Shield	RS3
<i>(for use with temperature and temp/RH sensors)</i>	
Light Sensor Bracket	M-LBB
<i>(for mounting PAR and solar radiation sensors on masts or flat vertical surfaces)</i>	
Light Sensor Level	M-LLA
<i>(recommended for installing PAR and solar radiation sensors)</i>	
NDVI Light Sensor Bracket	M-NDVI
Smart Sensor Extension Cables	
<i>(total cable length of all sensor cables is limited to 100 m (300 ft))</i>	
2-m length	S-EXT-M002
5-m length	S-EXT-M005
10-m length	S-EXT-M010
25-m length	S-EXT-M025
Weatherproof Connection Housing (required for outside connections)	S-EXT-CASE
1 to 2 Sensor Adapter	S-ADAPT-5
<i>This allows a single Smart Sensor input to branch to two Smart Sensors.</i>	
Cable Caddy	M-CDY
Smart Sensor Expansion Box	S-ADAPT-6

For more details on accessories, see page 50





### HOBO Energy Logger

#### H22-001

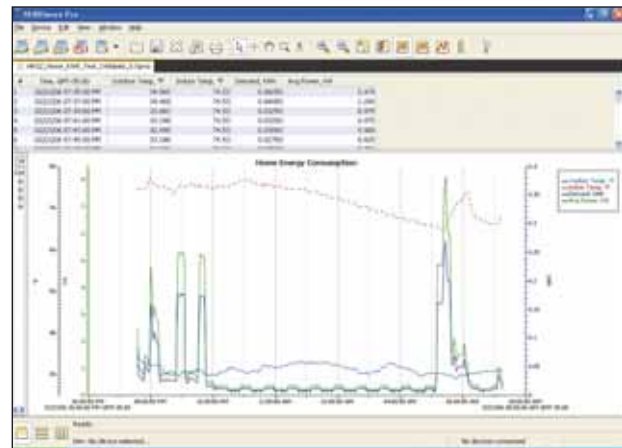
15.4 x 9.4 x 5.1 cm  
(6.06 x 3.69 x 2.00 in)  
418.7 g (14.77 oz)

- 4-20mA
- AC Current
- AC Voltage
- Air Velocity
- Amp Hour
- Carbon Dioxide
- Compressed Air Flow
- DC Current
- DC Voltage
- Differential Pressure
- Gauge Pressure
- Kilowatt Hours
- Kilowatts
- Power Factor
- Pulse Input
- Relative Humidity
- Temperature
- Volatile Organic Compound
- Volt-Amp Reactive
- Volt-Amp Reactive Hour
- Volt-Amps
- Water Flow
- Watt Hours
- Watts
- Wind

The HOBO Energy Logger is a modular, re-configurable 15-channel data logging system for energy and environmental monitoring applications.

#### Key Advantages:

- Records up to 15 channels
- 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
- Works with Onset's E50B2 Power & Energy Meter to measure Power Factor (PF), Reactive Power (VAR), Watt Hours (Wh) and more



*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 page 49 for external sensors and attachment accessories.*

*See [onsetcomp.com](http://onsetcomp.com) for application and specific system diagrams.*

## HOBO Energy Logger Ordering Guide

<b>HOBO Energy Logger</b> FlexSmart® TRMS Module FlexSmart Analog Module	H22-001 S-FS-TRMSA S-FS-CVIA	Veris kW Ashcroft Gauge Pressure 100 psig 200 psig 500 psig	T-VER-8044-100 T-ASH-G2-100 T-ASH-G2-200 T-ASH-G2-500
<b>Pulse Input Adapter</b>	S-UCC-M006	Differential Air Pressure Transducer 0.01-10.0 WC 0.01-10.0 WC	T-VER-PXU-L T-VER-PXU-X
<b>Sensors</b> <i>Smart Sensors (plug-and-play, no module required).</i>		Vaisala Duct-Mount RH/Temp	T-VAI-HMD-40Y
<b>12-bit Temperature</b> 2-m cable 6-m cable 17-m cable	S-TMB-M002 S-TMB-M006 S-TMB-M017	Telaire CO <sub>2</sub> /Temp Cable to Module	TEL-7001 CABLE-2070
<b>12-bit Temp/RH</b> 2-m cable 8-m cable	S-THB-M002 S-THB-M008	DC Current 0-200 Amp -200 to 200 Amp	T-VER-H970-200 T-VER-971BP-200
<b>E50B2 Power &amp; Energy Meter</b> (requires 1 to 3 Pulse Input Adapters) Measurements: AC Current, AC Voltage, Amp Hour, Amps, Kilowatt Hours, Kilowatts, Power Factor, Volt-Amp Reactive, Volt-Amp Reactive Hour, Volt-Amps, Volts, Watt Hours, Watts	T-VER-E50B2	Air Velocity Sensor 0.15-10 m/s 0.15-5 m/s 0.15-10 m/s 0.15-5 m/s	T-DCI-F900-L-P T-DCI-F900-L-O T-DCI-F900-S-P T-DCI-F900-S-O
<b>WattNode kWh</b> <i>Pulse Input Adapter required.</i> Wye config 208/240 Wye 208/240 opt Delta/Wye config 208/240 Delta/Wye config 480 "B" Series Voltage Lead Set	T-WNB-3Y-208 T-WNB-3Y-208-P T-WNB-3D-240 T-WNB-3D-480 A-WNB-LEADSET	Compressed Air Flow Meter 1-80 SCFM** 3-350 SCFM** Volatile Organic Compound (VOC) 0-10, 0-100, 0-1000 ppm	T-CDI-5200-10S T-CDI-5400-20S T-ION-TVOC
<b>Veris kWh</b> <i>Pulse Input Adapter required.</i> 1-phase, 300 Amp 3-phase, 800 Amp	T-VER-8051-300 T-VER-8053-800	<b>Solar &amp; Wind</b> Silicon Pyranometer (solar radiation) Wind Speed Sensor Wind Speed & Direction Sensor	S-LIB-M003 S-WSA-M003 S-WCA-M003
<b>Water Flow</b> Water Flow Meter	T-MINOL-130	<b>Adapters for R.M. Young Wind Monitoring</b> Wind Monitor AQ Marine Wind Monitor Wind Sentry Wind Alpine	S-WCB-M003 S-WCC-M003 S-WCD-M003 S-WCE-M003
<b>True RMS Current and Voltage</b> <i>FlexSmart TRMS Module required (Part #S-FS-TRMSA).</i>		<b>Accessories</b> Mounting Feet Kit DIN Mount Kit AC power adapter Smart Sensor Extension Cables (total cable length of all sensor cables is 100 m (300 ft). 2-m length 5-m length 10-m length 25-m length 1-to-2 Sensor Adapter***	A-H22-MOUNT-1 A-H22-DINMOUNT-1 P-AC-1 S-EXT-M002 S-EXT-M005 S-EXT-M010 S-EXT-M025 S-ADAPT-5
<b>Magnelab Split-Core AC Current</b> (also used with WattNode) 0-5 Amp 0-20 Amp 0-50 Amp 0-100 Amp 0-200 Amp 0-600 Amp	T-MAG-SCT-005 T-MAG-SCT-020 T-MAG-SCT-050 T-MAG-SCT-100 T-MAG-SCT-200 T-MAG-SCT-600	<b>Software</b> HOBOWare Pro Software (Windows/Mac) Serial Interface Cable (Required) USB Interface Cable	BHW-PRO-CD CABLE-PC-3.5 ADAPT-SER-USB
<b>Magnelab (mini CT) Split-Core AC Current</b> (also used with WattNode) 0-5 Amp 0-10 Amp 0-20 Amp 0-50 Amp 0-75 Amp	T-MAG-0400-05 T-MAG-0400-10 T-MAG-0400-20 T-MAG-0400-50 T-MAG-0400-75	<b>Optional Communications</b> HOBO U-Shuttle* Serial to Ethernet Server	U-DT-2 SERVER-DS203
<b>Magnelab AC Voltage</b> 0-150 Volt 0-300 Volt 0-600 Volt	T-MAG-SPT-150 T-MAG-SPT-300 T-MAG-SPT-600		
<b>Analog Input Sensors</b> <i>These sensors require a FlexSmart Analog Module (Part #S-FS-CVIA).</i>			

\*Requires HOBOWare Pro software, see page 52 for details.

\*\*Can also be configured for pulse output

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

**Complete system requires logger, sensor and software.**

**HOBOWare Software is available for download via the web. Visit [onsetcomp.com](http://onsetcomp.com) for details.**



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[www.mulder-hardenberg.com](http://www.mulder-hardenberg.com)

- Tripods and masts provide convenient system deployment
- Sensor mounting accessories provide proper spacing for accurate measurements
- Kits available for ordering convenience



### 2 Meter Tripod\*

#### M-TPB

- Height range: 1.72 to 2.13 m (5.6 to 7 ft)
- Mast diameter: 4.1 cm (1.63 in)
- Weight: 5.8 kg (12.8 lbs)

\* M-GKA Grounding Kit is recommended when using tripods in exposed locations.

### 2 Meter Tripod Kit

#### M-TPB-KIT

- 2-meter tripod (M-TPB)
- Grounding Kit (M-GKA)
- Guy Wire Kit (M-GWA)
- 1/2 in. Stake Kit (M-SKA) for guy wires
- 1/4 in. Stake Kit for tripod (M-SKB)
- Mast Level (M-MLA)



### 3 Meter Tripod\*

#### M-TPA

- Height range: 2.74 to 3.20 m (9 to 10.5 ft)
- Mast diameter: 4.1 cm (1.63 in)
- Weight: 12.7 kg (28 lbs)
- Maximum slope: 13 degrees for installation on moderately uneven ground

\* M-GKA Grounding Kit is recommended when using tripods in exposed locations.

### 3 Meter Tripod Kit

#### M-TPA-KIT

- 3-meter tripod (M-TPA)
- 1/2 in. Stake Kit (M-SKA) for guy wires
- Grounding Kit (M-GKA)
- Guy Wire Kit (M-GWA)
- Mast Level (M-MLA)



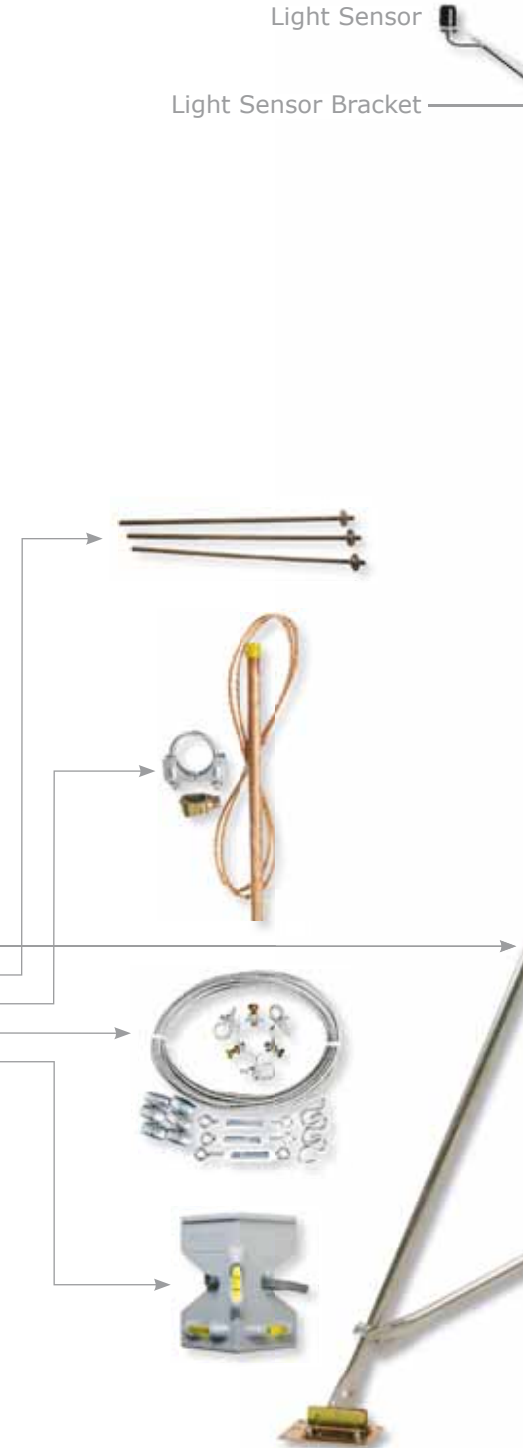
### Cable Caddy

#### M-CDY

- Extends sensor cable life by securing extra cables inside it
- Provides a convenient place to mount the S-BPB barometric pressure sensor
- Includes U-bolt for mast mounting and 4 cable ties

Light Sensor

Light Sensor Bracket



Data Logging Systems



Wind Direction

Wind Speed

Rain Gauge

Half Cross Arm

Solar Radiation Shield

Solar Panel

HOBO U30

Cable Caddy

3 Meter Tripod with Mast



### Light Sensor Bracket

**M-LBB**

Includes leveling screws and u-bolts for mast mounting

### Solar Radiation Shield

**RS3**

Pre-assembled For S-THBs, S-TMBs includes clamp for mast mounting.



### Half Cross Arm

**M-CAB**

Half cross arm (49 cm or 19.2 in)

### NDVI Light Sensor Bracket

**M-NDVI**

Used to mount 2 PAR sensors and 2 solar radiation sensors for making NDVI measurements. Also requires M-LBB light sensor bracket



### Light Sensor Level

**M-LLA**

Purchase one for use on any number of light sensors.

### Smart Sensor Extension Cables

**S-EXT-MOxx**

2 m, 5 m, 10 m, 25 m (16 ft, 33 ft, 82 ft)

cable lengths available Use individually or connected together to optimize sensor placement. A weatherproof housing is required for outdoor connections (Part# S-EXT-CASE). Limited to 100 meters per data logger.

