# HOBO U30 Remote Monitoring Systems


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

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

### HOBO U30/Wi-Fi

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

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

*See 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.

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

*See 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.*

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

*See onsetcomp.com for the latest selection of service plans.*

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

**Software (one required)**

| | |
|---|---|
| HOBO U30 Shuttle | U-DT-2 |
| HOBOware Pro (Windows/Mac) | 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 |
| $CO_2$/Temp | TEL-7001 |
| $CO_2$/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 *(does not provide protection from direct lightning strikes)* | M-GKA |
| Mast Level *(recommended for installing masts or tripods)* | M-MLA |
| Half Cross Arm *(recommended for use with wind sensors)* | M-CAB |
| Solar Radiation Shield *(for use with temperature and temp/RH sensors)* | RS3 |
| Light Sensor Bracket *(for mounting PAR and solar radiation sensors on masts or flat vertical surfaces)* | M-LBB |
| Light Sensor Level *(recommended for installing PAR and solar radiation sensors)* | M-LLA |
| NDVI Light Sensor Bracket | M-NDVI |
| Smart Sensor Extension Cables *(total cable length of all sensor cables is limited to 100 m (300 ft)* | |
| 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 *This allows a single Smart Sensor input to branch to two Smart Sensors.* | S-ADAPT-5 |
| Cable Caddy | M-CDY |
| Smart Sensor Expansion Box | S-ADAPT-6 |

*For more details on accessories, see page 50*