

- **Web-based environmental monitoring**
- **All electronics housed within a research-grade, tamperproof enclosure**
- **Setup is quick and easy with plug-and-play sensors**
- **GSM Cellular, Wi-Fi, Ethernet, and non-wireless options available**

Available Models Include:

HOBO® U30/GSM



- Internet access to real-time data
- Double weather proof, tamperproof enclosure
- Connect sensors, plug in battery, and go!

NOT APPROVED FOR NZ

HOBO U30/Wi-Fi



- Connect sensors, plug in battery, and go!
- Ruggedized hardware, with integrated Wi-Fi
- Get notified of problems via cell phone or e-mail

HOBO U30/ETH



- Remote access to real-time data over Ethernet
- Connect sensors, plug in battery, and go!

HOBO U30/NRC



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

Learn More:
See specifications
See comparison chart

Research-Grade Dependability

The HOBO 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 systems' electronics are housed within a rugged double-weatherproof, tamperproof enclosure. This provides twice the protection and ensures years of reliable monitoring performance.



The HOBO Remote Monitoring System offers GSM cellular, Wi-Fi, Ethernet and non-wireless communications options.

Fast, Easy Deployment



The systems' plug-and-play architecture enables any combination of Smart Sensors to be plugged in without extensive user programming, wiring, or calibration.

Wide Range of Measurements

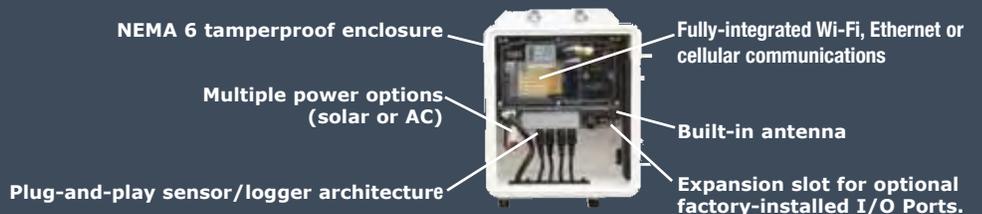
The HOBO U30 Remote Monitoring System can be configured with any of the following research-grade Smart Sensors (see page 13-15 for details):

- Temperature
- Relative Humidity
- Rainfall
- Soil Moisture
- Wind Speed & Direction
- Leaf Wetness
- PAR
- Solar Radiation
- Pulse Input
- Barometric Pressure

An optional analog sensor port provides two analog inputs, and power with user-selectable warm-up time.

Internal relay can be activated on user – defined alarm conditions.

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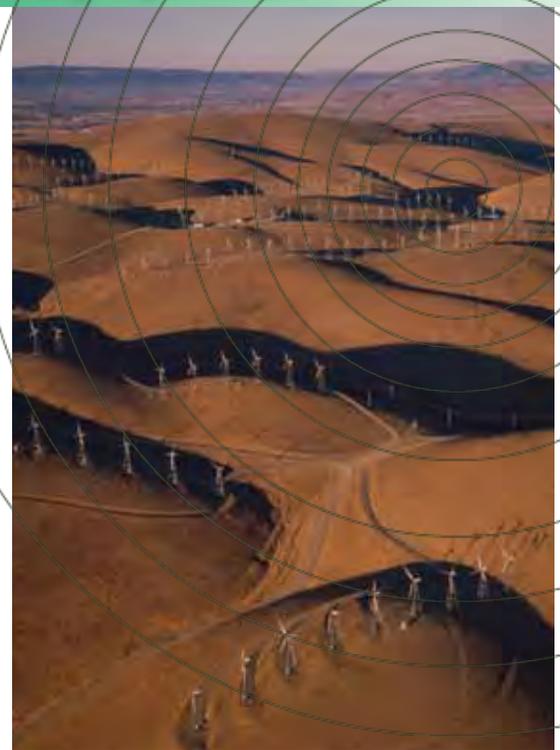
HOBO U30 Remote Monitoring Systems

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HOBOLink

HOBOLink is a web-enabled software designed for HOBOLink U30 GSM, Ethernet, and Wi-Fi models. It allows you to easily access current and historical data, set alarm notifications, and relay activations, quickly view your data, and manage and control your HOBOLink U30 Remote Monitoring Systems.



A secure web-based platform, HOBOLink provides users with password-protected accounts and 128-bit encrypted connection. You can keep your data entirely private, or make it accessible to others with a "Public Access" feature. Data can be provided in either text or HOBOWare® Pro format.



HOBOLink can automatically notify you via cell phone text message or e-mail when conditions exceed user-defined limits or if there is a sensor failure or low battery.



HOBO Remote Monitoring Systems Specifications

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Technical Specifications

GSM Wireless Communication	Quad-Band GSM/GPRS 850/900/1800/1900 MHz NOT APPROVED FOR NZ
Wi-Fi Wireless Communication	2.412 - 2.484 GHz IEEE 802.11 b/g
Ethernet	IEEE 802.11 b/g
Alarm Relay	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)
Alarm Notification Latency	Logging interval plus 2 to 4 minutes (typical)
Certifications	FCC Certified. Check www.onsetcomp.com for the latest certifications. 
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 40°C (-4 to 104°F)
Extended Operating Range	-40 to 60°C (-40 to 140°F) see battery life, Note: the GSM module will not communicate below -30°C (-22°F)
Local Communication	USB
Data Storage Memory	512K bytes local storage in non-volatile flash memory
Operational Indicators	LEDs show status of sensors, logging, alarms, and remote communication
Logging Interval	1 minute to 18 hours, user-specified
Station-to-Internet Upload Interval	10 minutes minimum, user-specified
Power	An Onset solar panel (1.2 w, 3 w, 6 w) 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 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 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

HOBO Outdoor Monitoring Systems

Smart Sensors

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Wind Speed & Direction

S-WCA-M003
3 m (9.8 ft) Cable

	Speed	Direction
Range:	0 to 44 m/s (0 to 99 mph)	0 to 358°, 2° dead band
Accuracy:	Greater of ± 0.5 m/s (1.1 mph) or $\pm 4\%$ of reading	$\pm 5^\circ$
Resolution:	0.19 m/s (0.42 mph)	1.4°
Starting threshold:	≤ 0.5 m/s, (1.1 mph)	
Data channels:	3 (average wind speed, direction, and highest 3-sec gust) Survival to 54 m/s (120 mph)	

Cross arm recommended for mounting. Grounding wire required for using this sensor with H21-002 Micro Station. Either the CABLE-HWS-G or CABLE-HWS-F can be used.



Wind Speed

S-WSA-M003
3 m (9.8 ft) Cable

Range:	0 to 45 m/s (0 to 100 mph)
Accuracy:	± 1.1 m/s (2.4 mph) or $\pm 4\%$ of reading, whichever is greater
Resolution:	0.38 m/s
Starting threshold:	≤ 1 m/s (2.2 mph)
Data channels:	2 (average wind speed and highest 2 sec gust) Survival to 54 m/sec (120 mph)

Cross arm or pole mount recommended (2x hose clamps required for pole mount). Not recommended for use with the HOBO Remote Monitoring System.



Barometric Pressure

S-BPA-CM10
10 cm (4 in) Cable

Range:	660 mbar to 1070 mbar (19.47 to 31.55 in. Hg)
Accuracy:	± 3.0 mbar (0.088 in. Hg) over full pressure range at 25°C (77°F) Additional temperature induced error of ± 5.0 mbar (0.148 in. Hg)
Resolution:	0.1 mbar (0.003 in. Hg)

Use inside logger enclosure to protect from direct exposure to the weather; Not recommended for use with the HOBO Remote Monitoring System.



Barometric Pressure

S-BPB-CM50
50 cm (20 in) Cable

Range:	660 mbar to 1070 mbar (19.47 to 31.55 in. Hg)
Accuracy:	± 3.0 mbar (0.088 in. Hg) over full pressure range at 25°C (77°F) Additional temperature induced error of ± 5.0 mbar (0.148 in. Hg)
Resolution:	0.1 mbar (0.003 in. Hg)

*Includes cable ties for mast mounting
Recommended for use with the HOBO Remote Monitoring System.*

HOBO Outdoor Monitoring Systems

Smart Sensors

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Photophysically Active Radiation (PAR)

S-LIA-M003
3 m (9.8 ft) Cable

Range: 0 to 2500 $\mu\text{mol}/\text{m}^2/\text{sec}$
Spectral range: 400 to 700 nm
Accuracy: $\pm 5 \mu\text{mol}/\text{m}^2/\text{sec}$ or $\pm 5\%$, whichever is greater in sunlight, Cosine corrected 0 to 80 degrees
Resolution: 2.5 $\mu\text{mol}/\text{m}^2/\text{sec}$
Light sensor bracket (M-LBB) and light sensor level (M-LLA) recommended.



Silicon Pyranometer

S-LIB-M003
3 m (9.8 ft) Cable

Range: 0 to 1280 W/m^2
Spectral range: 300 to 1100nm
Accuracy: $\pm 10 \text{W}/\text{m}^2$ or $\pm 5\%$, whichever is greater in sunlight, Cosine corrected 0 to 80 degrees
Resolution: 1.25 W/m^2
Light sensor bracket (M-LBB) and light sensor level (M-LLA) recommended.



Temperature/RH

S-THB-M00x
2 m, 8 m, (6.5 ft, 26 ft)
cable lengths available

Ranges: -40° to 75°C (-40° to 167°F); 0 to 100% RH from -40° to 75°C (-40° to 167°F)
Accuracy: $\pm 0.2^\circ$ @ 25°C ($\pm 0.36^\circ$ @ 77°F); $\pm 2.5\%$ typical, 3.5% maximum, from 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

S-TMB-M0xx
2 m, 6 m, 17 m
(6.5 ft, 20 ft, 56 ft)
cable lengths available

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: < 3 minutes (to 90% in airflow of 1 m/s)
Solar radiation shield (RS3) recommended for accurate temperature measurements in sunlight.

NIST-traceable temperature accuracy certification service available for all temperature sensors. See page 41 for details.

All smart sensors are CE compliant when used with H21-00x loggers.



Rainfall

0.2 mm: S-RGB-M002
0.01in: S-RGA M002
Cable 2 m (6.5 ft)

Mechanism: Tipping bucket, with 154 mm (6.06 in) receiving orifice
Range: Up to 12.7 cm/hr or 5 in/h, maximum 4000 tips per interval
Resolution: 0.2 mm (S-RGB) and 0.01 in. (S-RGA)
Calibration accuracy: $\pm 1.0\%$ at up to 20 mm/hour or 1 in/hour
Comes with side bracket for post or tripod mount and feet for surface mount.



Leaf Wetness

S-LWA-M003
Sensor Plate 4.7 x 5.1 cm
(1.8 x 2.0 in)
Tube 12.2 cm x 1.8 cm diameter
(4.8 x 0.7 in) Cable 3 m (9.8 ft)

Range: 0 (dry) to 100% (wet)
Sensor Type: Capacitive Grid
Repeatability: $\pm 5\%$
Resolution: 0.59%
Includes mounting bracket. Adjustable angle allows better matching to leaf characteristics.

HOBO Outdoor Monitoring Systems

Smart Sensors

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Soil Moisture-ECHO-20
S-SMA-M005
254 x 32 x 1.0 mm
(10 x 1.25 x 0.04 in)
Cable 5 m (16 ft)

Range: 0 to 0.40 m³/m³ volumetric water content
Accuracy: Typical: ±0.041 m³/m³ (±4%) up to 1ds/m,
±0.020 m³/m³ (±2%) with soil-specific calibration
Resolution: ±0.0004 m³/m³ (±0.04%)



Soil Moisture-ECHO-10
S-SMB-M005
152 x 32 x 1.0 mm
(6 x 1.25 x 0.04 in)
Cable 5 m (16 ft)

Range: 0 to 0.40 m³/m³ volumetric water content
Accuracy: Typical: ±0.041 m³/m³ (±4%) up to 1ds/m,
±0.020 m³/m³ (±2%) with soil-specific calibration
Resolution: ±0.0006 m³/m³ (±0.06%)



Soil Moisture-ECHO-5
S-SMC-M005
89 x 15 x 1.5 mm
(3.5 x 0.62 x 0.06 in)
Cable 5 m (16 ft)

Range: 0 to 1.00 m³/m³ volumetric water content
Accuracy: Typical: ±0.031 m³/m³ (±3%) up to 8 ds/m,
±0.020 m³/m³ (±2%) with soil-specific calibration
Resolution: ±0.0007 m³/m³ (±0.07%)



**4-20mA
Input Adapter**
S-CIA-CM14

Range: 0-20 mA
Accuracy: ±0.1 mA
Resolution: ±4.93 µA
Choice of non-switched or switched input to save external
battery power
Sensor trigger: 2.5 V



0-5V Input Adapter
S-VIA-CM14

Range: 0-5V DC
Accuracy: ±0.025V
Resolution: 1.221 millivolts
Sensor trigger: Open collector or 2.5V



Pulse Input Adapter
Electronic Switch Version
S-UCC-M006

Compatibility: Electronic switch closures (FET, open-collector outputs, or
CMOS-level logic)
Maximum input
frequency: 120Hz (120 pulses per second)
Range: 0-65,533 counts per logging interval
User
connection: 2-wire input (24 AWG wire; 2 wire nuts included)
Preferred pulse
polarity: Active low



Pulse Input Adapter
Contact Closure Version
S-UCD-M006
6.5 m (21 ft) Cable

Compatibility: Contact closures (tipping-bucket rain gauges or reed switches)
Maximum input
frequency: 2Hz (2 pulses per second)
Range: 0-65,533 counts per logging interval
User
connection: 2-wire input (24 AWG wire; 2 wire nuts included)
Preferred
switch type: Normally-open