



# ML4000RHT

## DATA SHEET



# ML4000RHT

The ML4000RHT series of data logger and radio transmitter units are well established as the most flexible units on the market today. Each unit has been designed to be compatible with a wide range of temperature and humidity probes to provide accurate and reliable measurement specifically selected for conservation requirements.

Additionally, depending on the format required by the user, temperature and humidity data can either be downloaded directly to a local PC using a USB cable or wirelessly transmitted directly to a local PC for automatic and immediate notification and analysis. Most wireless devices include the logging facility to guarantee against data loss in the event of radio communication loss.

The units are powered by a single 3.6 Volt AA Lithium battery, which can be replaced by the user as and when required. The battery life will be dependent on the method of data collection, but can last up to 3 years, with notification of when a change is required.

## Product Features

- Data logging and radio transmitter formats
- LCD display with data readings and battery life
- Logger memory capacity 100,000 readings
- Easily accessible battery and USB socket
- Supports (optional) hidden wall brackets
- Complies with RoHS, EU directives and WEEE
- Carries CE Mark
- Low power radio for long distance transmission (Over 3km over open ground)
- Up to 3 years battery life (depending on format of data retrieval, see below)
- Superior performance hardware with high accuracy sensors

## Benefits

- Assists with museum accreditation
- High performance technology with accurate probes
- Designed for discrete monitoring
- Ensure comfortable environment for visitors
- Prevent damage to organic materials

## Format

Data Logger	✓
Radio Logger	✓
GPRS (see iSense)	✗

## Data Logger Functions

**Memory:** 256k EEPROM.

**Logging intervals:** Programmable from 10 seconds to 24 hours.

**Record Capacity:** 100,000 records

**PC Interface:** USB communications

**Battery Life:** Up to 3 years

**Software required:** W200 – HanLog 4.5+  
W300 – HanLog 4.5+ Validated software for Heritage

**Accessories:** G129 – 3.6V AA Lithium battery  
Y055 – USB cable

Y119 – Wall mount bracket\*

*This product can be calibrated to your specifications, contact us for further details.*

**N.B Instrument operating range -20°C to +65°C in a non-condensing RH environment**

## Radio Transmitter Functions

**Frequency Options:** A range of frequencies are available between 433-458MHz. Country specific regulations apply.

**Radio Power:** 10mW

**Radio Range:** 3km over open ground

**Battery Life:** Up to 18 months

**Software required:** W400 – RadioLog 8.4+  
W119 – RadioLog 8.4+ Validated software for Heritage

**Hardware required:** CR2 – Controller  
SR2 – Smart Receiver  
REP – Repeater

**Accessories:** 88706 – 3.6V AA Lithium battery  
Y119 – Wall mount bracket\*

*This product can be calibrated to your specifications, contact us for further details.*

**N.B Instrument operating range -20°C to +65°C in a non-condensing RH environment**

\*for ML4706, ML4707, ML4708, ML4115 or ML4115 units

## Disclaimer

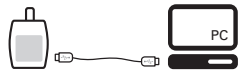
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# In Building Monitoring

The ML4000RHT series are available as data loggers or radio transmitters depending on the area size. Each unit has durable hardware for a long-term monitoring solution and the most accurate sensors on the market and monitoring requirements. Both data collecting formats enable alarm notification and keep a record of historical data for analysis and accreditation purposes.

## Standalone data logger



## Radio system

(requires radio receiver)




## Instrumentation Specification

**Dimensions:** 110 x 80 x 35mm  
**Weight:** 200 grams  
**Power Supply:** 3.6V AA Lithium battery  
**Case Material:** ABS & PC  
**Memory Capacity:** 100,000 readings  
**IP Rating:** IP50



The diagram below shows a typical radio system layout.

## Parameters

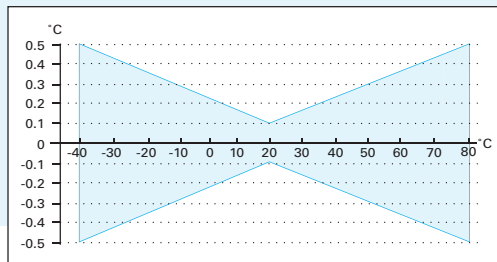
 Ambient room conditions

See next page for individual unit options or contact us to discuss your application.

## Technical Specifications

Description	RH/T unit with onboard sensors.	RH/T unit with onboard sensors and optional flood probe.	RH/T unit with onboard sensors and optional remote surface temperature probe.	RH/T unit high accuracy EE07 probe.
Data Logger Code	ML4106	N/A	ML4108	ML4114
Radio Transmitter Code	ML4106-434.075 (other frequencies available)	ML4107-434.075 (other frequencies available)	ML4108-434.075 (other frequencies available)	ML4114-434.075 (other frequencies available)
Add Your Probe			<b>Option 1: J095-05</b> 100mm x 4mm precision Thermistor probe, 3 mtr cable <b>Option 2: J097-05</b> 100mm x 4mm precision Thermistor probe, 5 mtr cable <b>Option 3: Y306-1-05</b> Precision Thermistor surface probe with 1 mtr cable <b>Option 4: Y306-3-05</b> Precision Thermistor surface probe with 3 mtr cable <b>Option 5: Y306-5-05</b> Precision Thermistor surface probe with 5 mtr cable	<b>Option 1: J140</b> EE07-02 RH/T probe <b>Option 2: Y421-3</b> RH remote lead 3mtrs <b>Option 3: Y421-5</b> RH remote lead 5m
Add Additional Probe:	N/A	V053 – Flood Cable	N/A	N/A
Internal Temp. Probe	Precision Thermistor	Precision Thermistor	Precision Thermistor	
Range	-20°C to +60°C	-20°C to +60°C	-20°C to +60°C	
Accuracy	±0.1°C between -10°C to +40°C ±0.3°C Outside these extremes	±0.1°C between -10°C to +40°C ±0.3°C Outside these extremes	±0.1°C between -10°C to +40°C ±0.3°C Outside these extremes	
Display Resolution	0.1°C	0.1°C	0.1°C	
External Temp. Probe			Precision Thermistor (remote surface probe)	EE07 probe (11.8mm x 83mm) PT1000 (Tolerance class A)
Range			-40°C to +60°C	-40°C to +80°C
Accuracy			±0.1°C between -10°C to +40°C ±0.3°C Outside these extremes	±0.1°C at 20°C (see Temperature accuracy chart below)
Resolution			0.1°C	0.1°C
Humidity Probes	Capacitive Polymer	Capacitive Polymer	Capacitive Polymer	Capacitive Polymer
Recommended Range	10-90%RH non condensing	10-90%RH non condensing	10-90%RH non condensing	0-100%RH non condensing
Accuracy	±3%RH	±3%RH	±3%RH	±2% (0-90%) ±3% (90-100%)
Temp Dependence	$< (0.025 + 0.0003 \times RH) \left[ \frac{\%RH}{^{\circ}C} \right]$	$< (0.025 + 0.0003 \times RH) \left[ \frac{\%RH}{^{\circ}C} \right]$	$< (0.025 + 0.0003 \times RH) \left[ \frac{\%RH}{^{\circ}C} \right]$	$< (0.025 + 0.0003 \times RH) \left[ \frac{\%RH}{^{\circ}C} \right]$
Resolution	0.1% RH	0.1% RH	0.1% RH	0.1% RH

Temperature accuracy chart

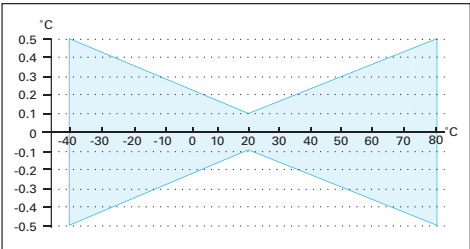




# Outdoor/Remote Monitoring

The ML4000RHT series outdoor loggers and transmitters are rugged units that are specifically designed for outdoor use. For total reliability of recorded data all Hanwell outdoor monitors are fitted with solar radiation shields. The radio transmitters' radio range is proven to reach up to 3km over open ground making them the most advanced on the market today.

Temperature accuracy chart



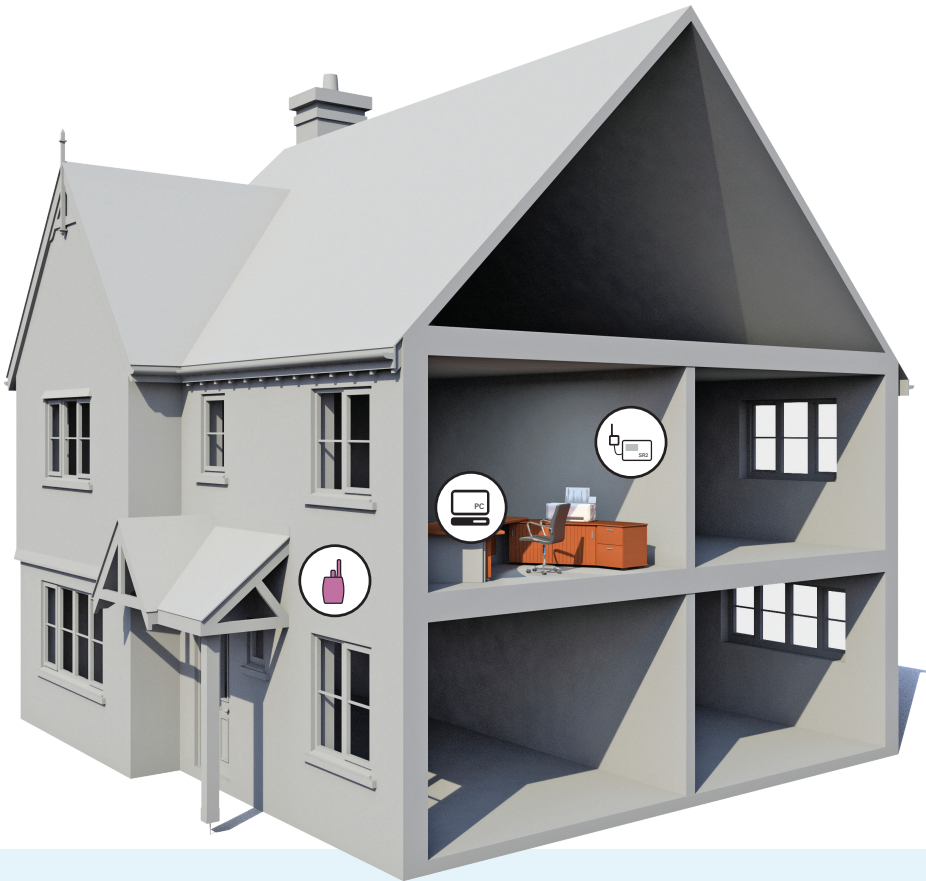
Parameters

Temperature & Humidity

## Technical Specifications

Description	Outdoor RH/T unit with onboard sensors.	Outdoor RH/T unit with on board sensor and optional remote surface temperature probe.
Data Logger Code	ML4109	ML4110
Radio Transmitter Code	ML4109-434.075 (other frequencies available)	ML4110-434.075 (other frequencies available)
Internal Temp. Probe	EE07 probe (11.8mm x 83mm)	EE07 probe (11.8mm x 83mm)
Range	-20°C to +60°C	-20°C to +60°C
Accuracy	±0.1°C between -10°C to +40°C ±0.3°C Outside these extremes	±0.1°C between -10°C to +40°C. ±0.3°C Outside these extremes.
Display Resolution	0.1°C	0.1°C
External Temp. Probe	Pt1000 (tolerance class A)	Pt1000 (tolerance class A)
Range	-40°C to +60°C	-40 to +60 C
Accuracy	±0.1°C at 20°C	±0.1 C at 20deg/C
Resolution	0.1°C	0.1 C
Humidity Probes	Capacitive Polymer	Capacitive Polymer
Recommended Range	0-100% RH non-condensing	0-100% RH non-condensing
Accuracy	±2% (0-90%) ±3% (90-100%)	±2% (0-90%) ±3% (90-100%)
Temp. Dependence	$< (0.025 + 0.0003 \times RH) \left[ \frac{\%RH}{^{\circ}C} \right]$	$< (0.025 + 0.0003 \times RH) \left[ \frac{\%RH}{^{\circ}C} \right]$
Add Additional Probe:		Remote Surface Probe
Range		-40°C to +60°C
Accuracy		±0.1°C between -10°C to +40°C ±0.3°C Outside these extremes
Display Resolution		0.1°C

\*All specifications above refer to unadjusted units, custom adjustment can be performed to order to improve stated accuracies



## Instrumentation Specification

**Dimensions:** 110 x 80 x 35mm  
**Weight:** 485 grams  
**Power Supply:** 3.6 Volt AA Lithium battery  
**Case Material:** ABS & PC  
**Memory Capacity:** 100,000 readings  
**IP Rating:** IP65



Intelligent monitoring and control solutions:  
**In Buildings | In Transit | Outdoor/Remote**



*Instrumentation for Science and Industry* ISI sa-nv Rue du Doyenné 3 - 1180 Brussels Tel +32 (0) 2 343 30 81 Fax 02/ 343 12 05 web : [http:// www.isi-be.com](http://www.isi-be.com) mail : [sales@isi-be.com](mailto:sales@isi-be.com)