



## Humidity Sensor



The I.I.S. Humidity Sensor (RH) allows you to accurately monitor the relative humidity of the air within a room or enclosure.

- Measures relative humidity, temperature and dew point with high accuracy

The I.I.S. Wireless Humidity (RH) Sensor measures the relative humidity at the device. The sensor returns RH and temperature values to the IIS Online Sensor Monitoring and Notification System. The system calculates dew point from the data and stores all three data points in the online system where the data can be reviewed and exported as a data sheet or graph. Notifications can be set up through the online system to alert the user when defined thresholds have been met or exceeded.

- Greenhouse humidity monitoring
- Agriculture environmental monitoring
- Art gallery and museum environmental monitoring
- Humidor monitoring
- General weather and environmental monitoring
- Many additional applications
- Wireless range of 1,200+ feet through 12+ walls \*
- Frequency-Hopping Spread Spectrum (FHSS)
- Improved interference immunity
- Improved power management for longer battery life \*\*
- (12+ years on AA batteries)
- Encrypt-RF® Security (Diffie-Hellman Key Exchange+ AES-128 CBC for sensor data messages)
- Onboard data memory stores up to 512 readings per sensor: - 10-minute heartbeats = 3.5 days - 2-hour heartbeats = 42 days

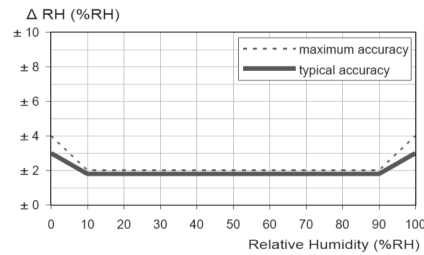


Figure 1. Typical and maximal tolerance at 25°C.

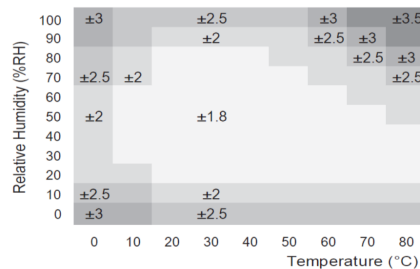


Figure 3. Typical accuracy of relative humidity measurements given in %RH for temperatures between 0 – 80°C.

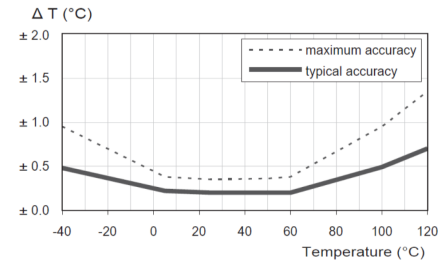


Figure 2. Maximal tolerance for temperature sensor in °C.

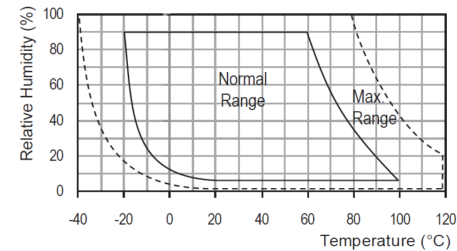


Figure 4. Operating Conditions

## Operating Range

The sensor works stable within recommended Normal Range—see Figure 4. Long-term exposure to conditions outside Normal Range, especially at humidity >80%RH, may temporarily offset the RH signal (+3%RH after 60h). After return into the Normal Range it will slowly return towards calibration state by itself. Prolonged exposure to extreme conditions may accelerate aging.

I.I.S. Industrial sensors are enclosed in reliable, weatherproof NEMA-rated enclosures. Our NEMA-rated enclosures are constructed for both indoor or outdoor use and protect the sensor circuitry against the ingress of solid foreign objects like dust as well as the damaging effects of water (rain, sleet, snow, splashing water, and hose-directed water).

- Safe from falling dirt
- Protects against wind-blown dust
- Protects against rain, sleet, snow, splashing water, and hose-directed water
- Increased level of corrosion resistance
- Will remain undamaged by ice formation on the enclosure



Supply voltage		2.0–3.8 VDC (3.0–3.8 VDC using power supply) *
Current consumption		0.2 $\mu$ A (sleep mode), 0.7 $\mu$ A (RTC sleep), 570 $\mu$ A (MCU idle), 2.5 mA (MCU active), 5.5 mA (radio RX mode), 22.6 mA (radio TX mode)
Operating temperature range (board circuitry and battery)		-40°C to +80°C (-40°F to +176°F)
Included battery	Max temperature range	-40° to +80°C (-40° to +176°F)
	Capacity	1500 mAh
Optional solar feature	Solar panel	5VDC/30mA (53mm x 30mm)
	Charging temperature range	0° to 45°C (32° to 113°F)
	Max temperature range	-20° to 60°C (-4° to 140°F)
	Included rechargeable battery	600 mAh/>2000 charge cycles (80% of initial capacity)
	Solar efficiency	Optimized for high and low-light operation **
	Charging efficiency	40% ****
	Luminous sustainability	Minimum of 250 LUX ****
Accuracy		$\pm$ 2% under normal conditions (0%–80% RH) ***
RH operating range		0–100% RH ***
RH response time		8 sec (tau 63%) ***
Datalogging		Datalogs 2000 to 4000 readings if gateway connection is lost (non-volatile flash, persists through the power cycle): <ul style="list-style-type: none"><li>- 10-minute heartbeats = ~ 22 days</li><li>- 2-hour heartbeats = ~ 266 days</li></ul>
Wireless range		1,200+ ft non-line-of-sight
Security		Encrypt-RF® (256-bit key exchange and AES-128 CTR)
Weight		4.7 ounces
Enclosure rating		NEMA 1, 2, 4, 4x, 12 and 13 rated, sealed and weather proof
UL rating		UL Listed to UL508-4x specifications (File E194432)
Certifications		900 MHz product; FCC ID: ZTL-G2SC1 and IC: 9794A-G2SC1. 868 and 433 MHz product tested and found to comply with: EN 300 220-2 V3.1.1 (2017-02), EN 300 220-2 V3.1.1 (2017-02) and EN 60950



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\* Hardware cannot withstand negative voltage. Please take care when connecting a power device.

\*\* Light present 25% of day yields 125% of operating power to support 10-minute heartbeats.

\*\*\* View charts on last page for more information.

\*\*\*\* Solar feature's energy harvesting circuitry works indoors with low light.