EL-WiFi-21CFR-TH+

High Accuracy 21CFR Remote WiFi Temperature and Humidity Sensor

- Can be installed as part of a 21CFR compliant system with additional controls including permission-based use, authority level sign-off and full system audit
- -20 to +60°C (-4 to +140°F) temperature and 0 to 100% humidity measurement range
- Wirelessly stream and view data on the 21CFR Cloud
- Easy sensor set-up using free 21CFR WiFi Sensor Software
- Configurable high and low alarms with indicator



The EL-WIFI-21CFR-TH+ measures the temperature and humidity of the environment in which it is situated.

Data is streamed wirelessly over any compatible WiFi network to be viewed on the 21CFR Cloud. During configuration, the sensor will search for an existing wireless network whilst physically connected to the PC. It can then be placed anywhere within range of the network.

If the sensor temporarily loses connectivity with the network, it will log readings until it is able to communicate again with the 21CFR Cloud (max 30 days at 10 second sample interval). The unit is freestanding, but it can be attached to a wall or surface using the bracket provided. The sensor is IEEE 802.11bgn* (2.4GHz) compliant, supports WEP, WPA/WPA2 encryption and enterprise networks (PEAP, TTLS, FAST).

EL-WiFi-21CFR-TH+ has a protection rating of IP55. The unit is freestanding, but it can be attached to a wall or surface using the bracket provided. The unit can be clipped in and out of the bracket as required.

SPECIFICATIONS

	Minimum	Typical	Maximum	
Battery life		>6		Months
USB supply voltage (@500mA)	4.5	5.0	5.5	Vdc
Operating temperature range	-20 (-4)		+60 (+140)	°C (°F)
Logging period (user configurable)	10 sec	10 min	12 hrs	
Transmission period (user configurable)	1 min	1 hr	24 hrs	
Temperature measurement range	-20 (-4)		+60 (+140)	°C (°F)
Temperature measurement resolution		0.01 / 0.02		°C/°F
Temperature display resolution		0.01		
Temperature accuracy		±0.2 / ±0.4** (+5 to +60/ +41 to +140)		°C/°F
Humidity measurement range	0		100	%RH
Humidity measurement resolution		0.1		%RH
Humidity display resolution		0.1		
Humidity accuracy (@ 25°C)		±1.8** (10 to 90)		%RH
IP Rating	IP55 (Bung fully inserted, not permanently powered, device mounted vertically.)			
Dimensions	82 x 70 x 23mm (3.22 x 2.75 x 0.91")***			

ACCESSORIES

PSU-5VDC-USB-USA	USB Mains Power Adapter for USA
PSU USB-UK	USB Mains Power Adapter for UK
PSU USB-EU	USB Mains Power Adapter for EU

INCLUDED IN THE BOX

EL-WIFI WALL BRACKET	Wall mounting bracket for EL-WiFi sensors
CABLE USB A-MICRO B	USB Type A to Micro B

21CFR COMPLIANCE

Permission based use and access	✓
Authority based action sign-off	✓
Data records cannot be edited or deleted	✓
Complete system audit trail	✓
For a detailed compliance checklist, please visit www.lascarelectronics.com/data-brochures	

* MAC Address starting 98:8B:AD:2..... only
** Please refer to the charts in this datasheet for more detailed accuracy specifications
*** Excluding mounting bracket

CALIBRATION CERTIFICATES NOW AVAILABLE

Lascar now offers a Traceable Calibration Certificate Service on Temperature Data Loggers. Using reference equipment which has been calibrated by a UKAS/NIST accredited laboratory and using apparatus traceable to national or international standards. For more information, please visit **www.lascarelectronics.com/calibration.**

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21CFR WIFI SENSOR SOFTWARE

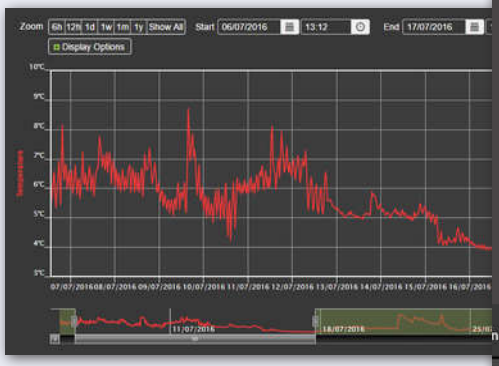
EasyLog 21CFR WiFi software* is available as a free download from download.filesthrutheair.com. Easy to install and use, EasyLog 21CFR WiFi Sensor Software allows easy sensor set-up and connection of sensors to a WiFi network and the 21CFR Cloud.



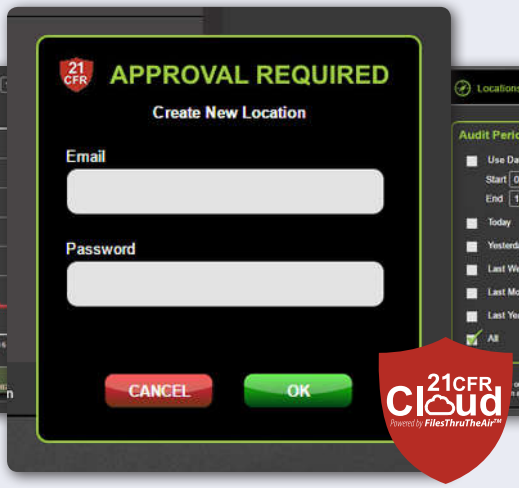
21CFR CLOUD

21CFR Cloud subscription delivers all of the flexibility of a remote monitoring system: Interact with sensors via any internet-enabled device; manage and monitor sensors; access event logs and set up email alerts; assign authorisation levels to user accounts and view comprehensive audit trail records. Unlike the standard EasyLog Cloud service, 21CFR Cloud includes other controls such as permission-based use, authority sign-off and full system audit to ensure data monitored and collected is regulated to 21CFR Part 11 standard.

For full pricing information and to create an account, please visit https://21cfr.wifisensorcloud.com/. Any queries or questions, please do not hesitate to contact our team.



Detailed data reporting



Authority sign-off on actions



Detailed system audit reporting

A Cloud account subscription is created during the WiFi sensor set-up process using EasyLog 21CFR WiFi Sensor Software. 21CFR WiFi Sensors are only compatible with the 21CFR Cloud 21cfr.wifisensorcloud.com.

Download the latest version of the software free of charge from download.filesthrutheair.com

BATTERY LIFE AND POWER SUPPLY

The battery can be recharged (unit must be between 0 - 40°C) via a PC, a USB +5V wall adapter, or a portable USB battery pack using the USB lead provided. It can also be permanently powered by a USB wall adapter or USB battery pack. Readings may be affected while the internal battery is being charged. However, once charged, continued connection of the charger will have no effect.

Battery life is dependent on: transmission period, WiFi encryption method, WiFi encryption key rotation frequency (determined by the router/access point), signal strength between router/access point and WiFi device, presence volume and type of WiFi traffic from other devices, sample rate and operating temperature.

Specifications liable to change without prior warning

*Requires Windows 7, 8.1, 10

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SENSOR ACCURACY & INFORMATION

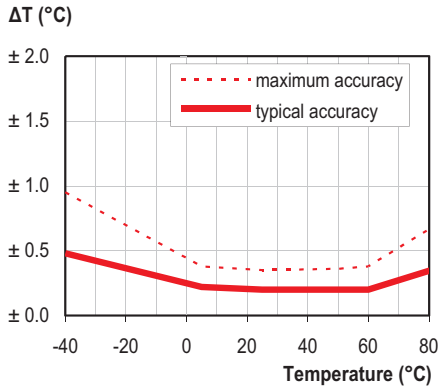
The humidity measuring element in the humidity data loggers can be contaminated through exposure to a variety of compounds. These products should not be kept in proximity to volatile chemicals such as solvents and other organic compounds. Generally speaking, if a material or compound emits a strong odour you should not keep your humidity data logger in close proximity to it. If you would like more information, please contact your local Lascar Electronics office.

Exposure to extreme conditions or chemical vapours will require the following reconditioning procedure to bring the internal sensor back to calibration state:

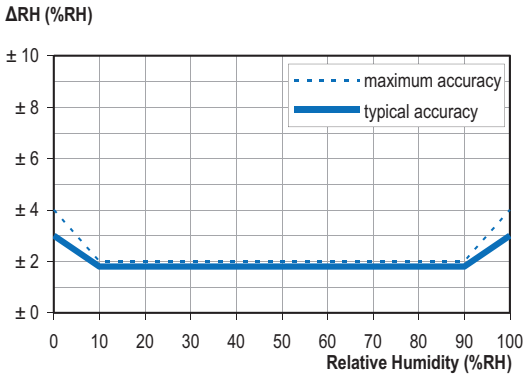
Baking 80°C (176°F) at < 5%RH for 36 hours.
Re-hydration 20 to 30°C (70 to 90°F) at > 74%RH for 48 hours.

High levels of pollutants may cause permanent damage to the internal sensor.

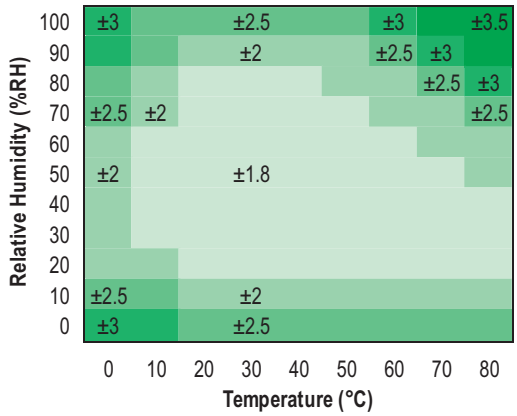
Typical and maximal tolerance for temperature sensor in °C.



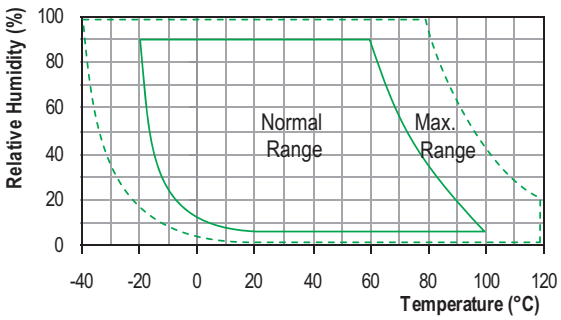
Typical and maximal tolerance at 25°C for relative humidity.



Typical accuracy of relative humidity measurements given in %RH for temperatures 0 to 80°C.



Operating conditions



Long term exposure to humidity levels outside of the 'normal' range may temporarily offset RH measurements (±3%RH after 60 hours). Once returned to less extreme conditions the device will slowly return towards calibration state.

When tracking changes in ambient conditions, the response time of the humidity sensor in your data logger is approximately 20 minutes to reach 90% of the reading. However, if you are measuring step changes in humidity (for example if calibrating the product) it is advised that you leave the unit for up to four hours to ensure that it has enough time to settle at the new level.

It is worth remembering that the value of relative humidity is of course sensitive to temperature variation. As an example, at a relative humidity of ~90%RH at ambient temperature, a variation in temperature of 1°C will result in a change of up to -5%RH. Therefore when comparing multiple devices or calibrating them, any temperature variations must be considered.

RADIO PARAMETERS

Radio Parameters - (Typical - Nominal Conditions)

Parameter	Minimum	Typical	Maximum	Unit	Notes
RF Frequency Range	2400		2497	MHz	N/A
Radio bit rate	1		HT20 MCS7	Mbps	N/A
Transmit/Receive Specification for GS2011M					
Output power (average) for GS2011MIE		16 13.5 13 15 15 11 15 15 6		dBm	11b, 1Mbps 11b, 5.5Mbps 11b, 11Mbps 11g, 6Mbps 11g, 18Mbps 11g, 54Mbps 11n, MCS0 11n, MCS3 11n, MCS7
Output power (average) for GS2011MIZ		16 12 11 12 12 10 12 12 5		dBm	11b, 1Mbps 11b, 5.5Mbps 11b, 11Mbps 11g, 6Mbps 11g, 18Mbps 11g, 54Mbps 11n, MCS0 11n, MCS3 11n, MCS7
Spectrum Mask				dBr	Meets 802.11 requirement for selected data rates
Receive Sensitivity at antenna port		-90 -84 -86 -71 -86 -67		dBm	11b, 1Mbps, BPSK/DSSS 11b, 11Mbps 11g, 6Mbps 11g, 54Mbps, 64-QAM/OFDM 11n, MSC0 11n, MCS7, 64-QAM/OFDM