

μ-CLIMAT SENSOR

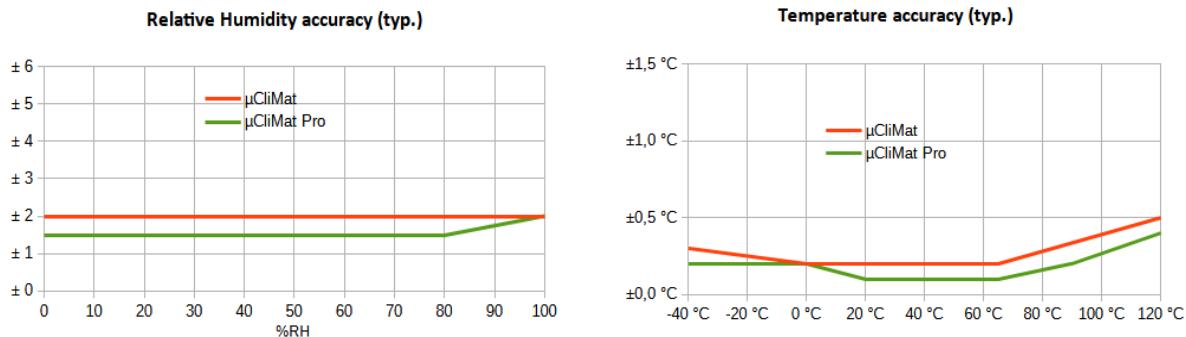
General properties:

The μCliMat sensor contains temperature and humidity sensors specifically designed for the use in layered flexible materials such as mattresses and car seats:

- Light, thin, flexible, stretchable and porous
- Mechanical and micro-climatological characteristics of the tested setup largely remain unaltered by the measurement
- Modular system composed of a set of identical measurement units
- Redundant RS485 bus topology
- Measuring hub with galvanic isolation (communication lines and power supply)
- 3-Dimensional view on time-dependent microclimate within soft materials by combining sensor mats in layers



Technical data:



Sensor specifications

Type	μCliMat (SHT31)
Range	0..100%RH, -40..+125°C
Response time	8s (RH), >2s (T)
Repeatability	± 0.15%RH, ± 0.12°C
Typ. Precision	± 2%RH, ± 0.2°C (± 0.36°F)
Min. Precision	± 5%RH, ± 0.4°C (± 0.72°F)
Long-term drift	<0.25%RH/yr, <0.03°C/yr

Type	μCliMat Pro (SHT35)
Range	0..100%RH, -40..+125°C
Response time	8s (RH), >2s (T)
Repeatability	± 0.15%RH, ± 0.12°C
Typ. Precision	± 1.5%RH, ± 0.1°C (± 0.18°F)
Min. Precision	± 3.5%RH, ± 0.2°C (± 0.36°F)
Long-term drift	<0.25%RH/yr, <0.03°C/yr

Unit specifications

Length	225 mm (8.86 inch)
Width	225 mm (8.86 inch)
Inter sensor distance	110 mm (4.33 inch)
Max units	128 (x 4 sensors)

Measuring hub

Operating voltage	AC 100-240 V
Maximal power	18 W
Sensor mat connections	1 or 4
Sample rate	Max 15Hz

Environmental conditions

Operating temperature	5°C to 60°C
Storage temperature	10°C to 50°C (0°C to 80°C peak)
Operating humidity	5% RH to 95% RH
Storage humidity	20% RH to 60% RH



Deformation characteristics:

Cylindrical deformation

	Curvature ρ			
	mm		inch	
Pure elastic	∞	100	∞	3,9
Reversible permanent	100	25	3,9	1,0
Irreversible permanent	25	0	1,0	0,0

Unidirectional stretch

	Relative elongation %	
Pure elastic	0	7
Reversible permanent	7	12
Irreversible permanent	12	∞

Usage guidelines:

- Always close the software and power down the hub before changing connections between islands or between islands and hub to prevent short circuits to damage the electronics
- Maximal number of mating cycles: 30
- Avoid direct contact forces on the sensors; apply a pressure distributing material when used as a top layer.
- Avoid the use of an uneven subsurface like metal grids or similar directly underneath the sensor mat; apply a pressure distributing material when necessary.



µ-Climat SensorMat ISD11-SHT31 (3D stack)



Technical data:

General properties

Sensors	96
Sensor Type	µCliMat (SHT31)
Sample rate	~ 0.3 Hz
Inter sensor distance (ISD)	110 mm (8,86 inch)
Layers	4
Active area	660 mm x 440 mm
Sleeve fabric	none

Measuring hub

Operating voltage	AC 100-240 V
Maximal power	18 W
Sensor mat connections	4
Sample rate	Max 15 Hz

Environmental conditions

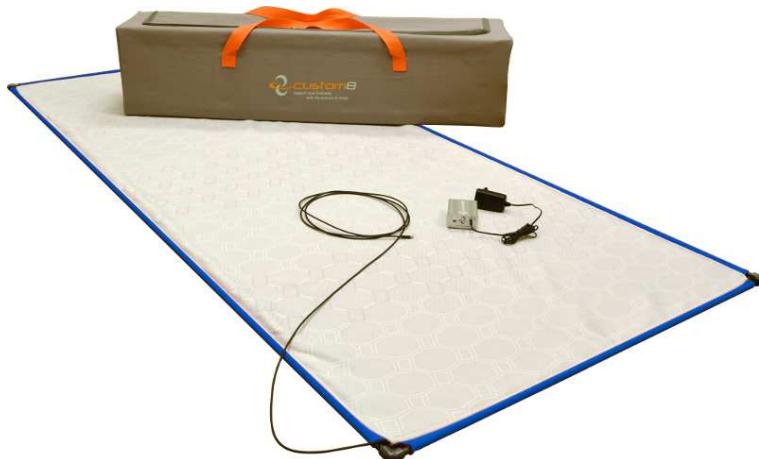
Operating temperature	0°C to 60°C
Storage temperature	10°C to 50°C (0°C to 80°C peak)
Operating humidity	5% RH to 95% RH
Storage humidity	20% RH to 60% RH

Usage guidelines:

- Use a standardized heat and moisture source to obtain repetitive results
 - The µClimat software can integrate the outputs of a SWEATOR Torso (inside-climate.com)
- Avoid the use of an uneven subsurface like metal grids or similar directly underneath the sensor mat; apply a pressure distributing material when necessary.



μ-CLIMAT SENSORMAT ISD11-SHT31 (FULL SIZE 2D)



Technical data:

General properties

Sensors	128
Sensor Type	μCliMat (SHT31)
Sample rate	~ 0.3 Hz
Inter sensor distance (ISD)	110 mm (8,86 inch)
Surface	2000 mm x 900 mm
Active area	1760 mm x 880 mm
Sleeve fabric	Top: BT (100%PES) Bottom: BT TC7123 (55% PP, 45%PES)

Measuring hub

Operating voltage	AC 100-240 V
Maximal power	18 W
Sensor mat connections	1
Sample rate	Max 15 Hz

Environmental conditions

Operating temperature	0°C to 60°C
Storage temperature	10°C to 50°C (0°C to 80°C peak)
Operating humidity	5% RH to 95% RH
Storage humidity	20% RH to 60% RH

Usage guidelines:

- Avoid the use of an uneven subsurface like metal grids or similar directly underneath the sensor mat; apply a pressure distributing material when necessary.
- Always use the carbon rods in the tunnels when using the sensormat on top of a mattress to prevent crinkling of the sensormat
- Roll the sensormat around the PU foam cylinder when moving the sensormat

