



MICROCLIMATE AND COMFORT AT THE HUMAN-TEXTILE INTERFACE

An optimal balance between heat and humidity is a crucial aspect for comfort around humans. *SWEATLOG* provides insight into the heat-humidity interaction between human and surrounding textiles with intelligent sensor solutions.

Comfort is a question of perceived heat. A concept which is captured within a microclimate. In the context of textiles, this microclimate is a result of the human thermo-regulation interacting with the ambient climate. Under standardized conditions it carries a comfort blueprint which allows to differentiate ready-made textile solutions.

SWEATLOG measures and visualizes these interactions either by human heat and sweat input or by heat-sweat

simulators (e.g. *SWEATOR*, see separate factsheet). It is a combination of data logging and sensors tracking temperature (T) and relative humidity (RH).

We offer *SWEATLOG BodyView*, *SleepView*, *SeatView*, and *HeadView*. (see images above)

Please contact us in case of further questions. Prices and delivery times on request.

PRODUCT FEATURES

- Simple handling
- Highly reliable technology
- Available as stand-alone sensors (flexibility)
- Available as fixed sensor arrays (short setup)
- PC independent usage
- Stationary use with PC
- USB interface
- Compatible to all *SWEATOR* products (see separate factsheet)

FIELDS OF APPLICATION

- Climate measurement in one or various layers of textile systems such as apparel, work wear, fashion wear, mattresses, helmets, socks, seating systems, and more
- Detection of heat and humidity transportation through finished products
- Optimization of heat and ventilation cycles
- Development of intelligent climate algorithms
- Comparison of the climate features of various materials
- Measurable presentation of “perceived” heat under standardized conditions

SeatView has been designed for seating devices of all kinds. A fixed array of sensors within a mesh structure allows for instant setup and data measurement. Placed on either the cushion or back rest areas of a seat, *SeatView* tracks and visualizes the developing microclimate live as it appears. See technical data for sensor and data logger specifications further below.

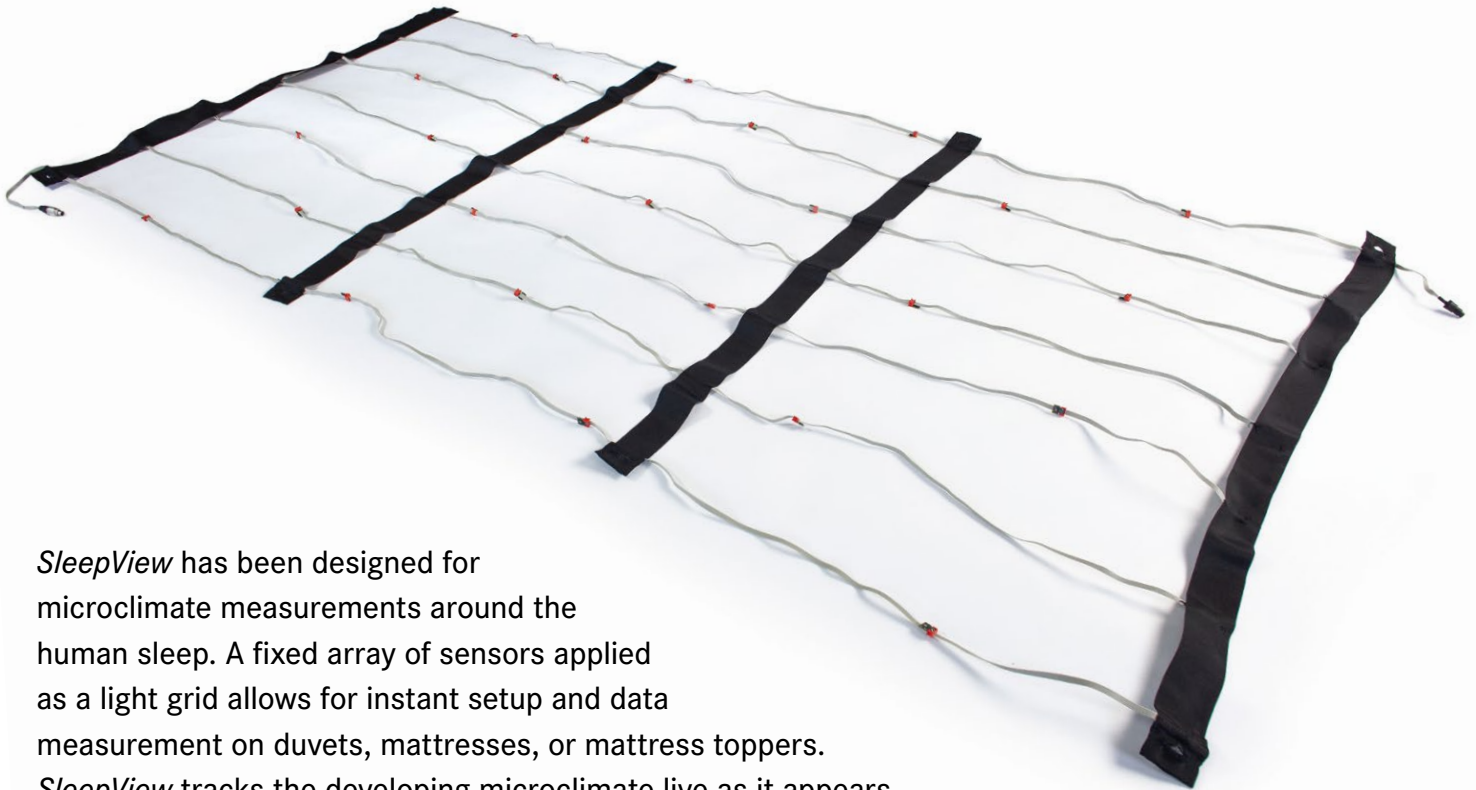


TECHNICAL DATA

Shapes:	<i>SeatView 24+1 M</i> SWEATLOG unit with one 42 x 42 cm measurement area within a 47 x 47 cm mat, plus 1 sensor for ambient climate tracking.
	<i>SeatView 24+1 L</i> Like M with one 45 x 45 cm measurement area within a 50 x 50 cm mat.
	<i>SeatView 31+1 M</i> Like 24+1 L with 7 further sensors in two additional columns. Increased climate representation, higher resolution.
	<i>SeatView 31+1 L</i> Like 31+1 M but stretched to a 50 x 65 cm mat size.
	<i>Cables</i> On demand for power supply, logger connection, and external sensor set-off.
Data output:	T (°C), RH (%), AH (g/kg), HI (°C) = perceived T, time, visualization optional.
Data evaluation:	MS Excel or similar. We offer custom made evaluation files based on MS Excel.
Data visualisation:	Yes, see evaluation examples below.

SPECIAL FIELDS OF APPLICATION

- Live microclimate tracking in car seats, agricultural vehicles, aircraft seats, wheelchairs, etc. Human occupant supported heat and sweat input. Remote usage, no PC necessary.
- Based on standardized test setups with *SWEATOR* the data is highly reproducible.
- *SWEATOR TORSO* supported measurements in lab environments on sleep systems. Several mats may be connected to track various mattress layers parallel.
- *SWEATOR SKIN* supported measurements on seating devices. In combination with *BodyView* the seat core may be measured parallel.
- Compatible to *SWEATOR TORSO* and *SKIN* simulation devices (see *SWEATOR* factsheet). Under standardized test conditions *SWEATOR* and *SWEATLOG* data is highly reproducible.



SleepView has been designed for microclimate measurements around the human sleep. A fixed array of sensors applied as a light grid allows for instant setup and data measurement on duvets, mattresses, or mattress toppers. *SleepView* tracks the developing microclimate live as it appears over the course of a night sleep or in lab simulations.

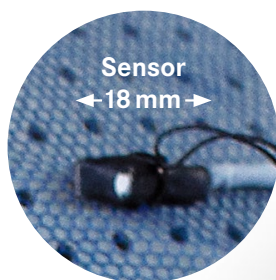
TECHNICAL DATA

Shapes:	<i>SleepView 31+1</i>	<i>SWEATLOG</i> unit with one approx. 180 x 70 cm measurement area shaped as a grid, plus 1 sensor for ambient room climate tracking. Designed for human borne data in live sleep tests.
	<i>Cables</i>	On demand for power supply, logger connection, and external sensor set-off.
Data output:	T (°C), RH (%), AH (g/kg), HI (°C) = perceived T, time, visualization optional	
Data evaluation:	TXT-file on SD-card. We offer custom made evaluation files based on MS Excel.	
Data visualisation:	<i>SleepView</i> offers an image of the given area.	

SPECIAL FIELDS OF APPLICATION

- Live microclimate tracking during sleep. Human borne heat and sweat input. Remote usage, no PC necessary. E.g. sleep labs, home care.
- Qualitative comparison of bedding devices and sleep systems.
- Compatible to *SWEATOR TORSO* simulation devices (see *SWEATOR* factsheet).

HeadView is a combination of *SeatView* and *BodyView* and has been designed for head protection devices of all kinds. A fixed array of sensors applied to a wearable hood allows for instant setup and data measurement over the head area. *HeadView* tracks and visualizes the developing microclimate live as it appears.



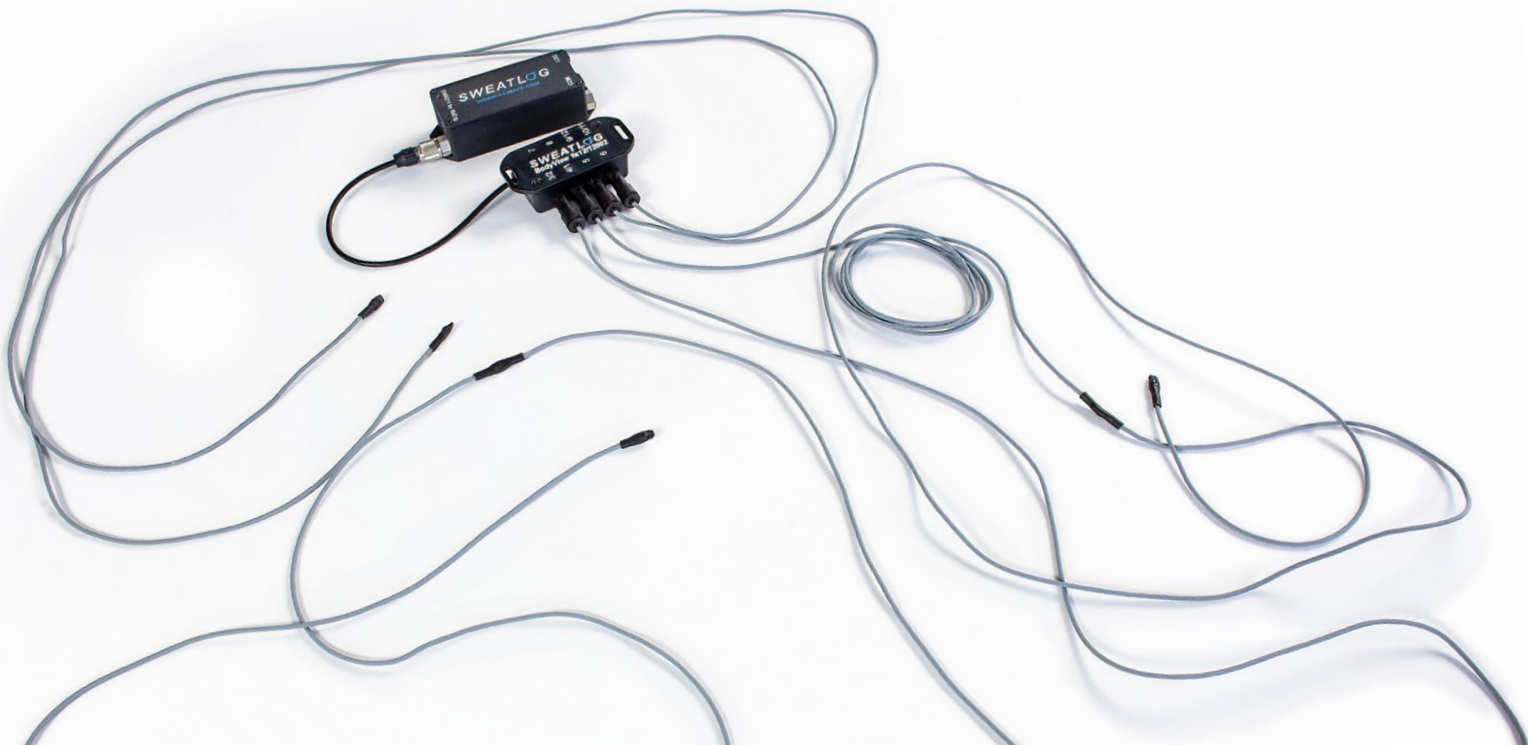
TECHNICAL DATA

Shapes:	<i>HeadView 14+1</i>	SWEATLOG unit with a hood (e. g. baclava or lighter) equipped with a fixed array of 14 sensors.
	<i>Cables</i>	On demand for power supply, logger connection, and external sensor set-off.
Data output:	T (°C), RH (%), AH (g/kg), HI (°C) = perceived T, time, visualization optional	
Data evaluation:	MS Excel or similar. We offer custom made evaluation files based on MS Excel.	
Data visualisation:	Yes, <i>HeadView</i> is the image of 14 sensors embedded in a 24 sensors array.	

SPECIAL FIELDS OF APPLICATION

- Live microclimate tracking in head protection devices. Human borne heat and sweat input. Remote usage, no PC necessary.
- SWEATOR HEAD supported measurements under standardized test conditions. Highly reproducible data (see SWEATOR factsheet).

BodyView has been designed to gain maximum flexibility with sensor placement and data tracking. It allows to equip and investigate nearly every ready-made textile or semi-textile product. Alternatively, also rooms or other spatial structures. See technical data for sensor and data logger specifications further below.

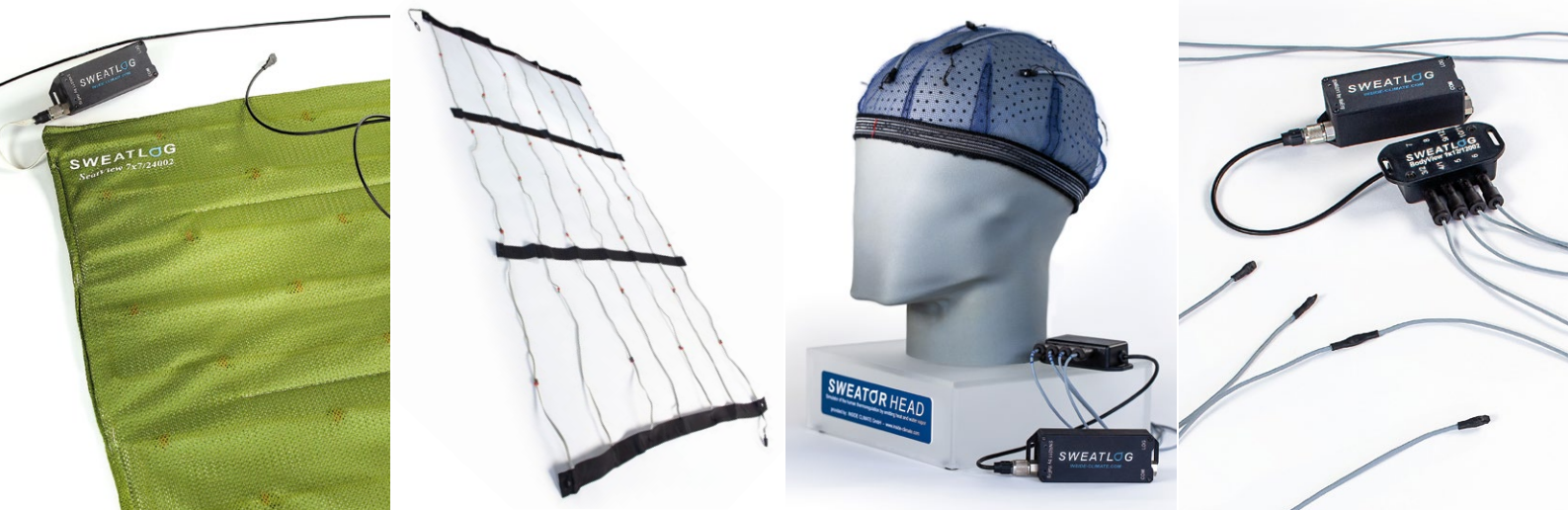


TECHNICAL DATA

Shapes:	<i>BodyView S</i>	SWEATLOG unit with 4 to 8 stand-alone sensors, cable lengths on demand.
	<i>BodyView DS</i>	SWEATLOG unit with 9 to 16 sensors per unit. Above 8 each cable has one additional sensor. Distance and cable lengths on demand.
	<i>BodyView L</i>	Up to 32 fixed sensors in one cable line with desired distances. Extensions on demand.
Data output:	T (°C), RH (%), AH (g/kg), HI (°C) = perceived T, time	
Data evaluation:	TXT-file on SD-card. We offer custom made evaluation files based on MS Excel.	
Data visualisation:	Not advised but optional	

SPECIAL FIELDS OF APPLICATION

- Outdoor test measurements with humans, e.g. apparel, shoes, head protection, work wear, fashion wear, footwear.
- Complex products and bodies, e.g. car seats, aircraft seats, hospital mattresses, wheelchairs.
- Any larger space indicating a microclimate challenge.
- SWEATOR supported measurements under standardized test conditions.



TECHNICAL SENSOR AND LOGGER DATA

Relative humidity (RH)

Measurement range:	0 – 100 % RH, fully dewable
Accuracy:	+/- 2 % RH (stand-alone sensors) +/- 0,3° C (fixed array sensors)
Resolution:	0,01 % RH

Temperature (T)

Measurement range:	-40°C - + 80°C
Accuracy:	+/- 0,3°C
Resolution:	0,1°C

Data logger (may vary)

Size:	approx. 100 x 35 x 26 mm
Weight:	approx. 50 g
Storage:	SD card
Data format:	txt file
Interface:	USB 2.0
Measurement interval:	5, 10, 15, 20, ... sec
Modes:	Live (PC), Log (SD-card)
Energy:	Standard power bank or PC
Operating software:	SWEATLOG.exe

System requirements

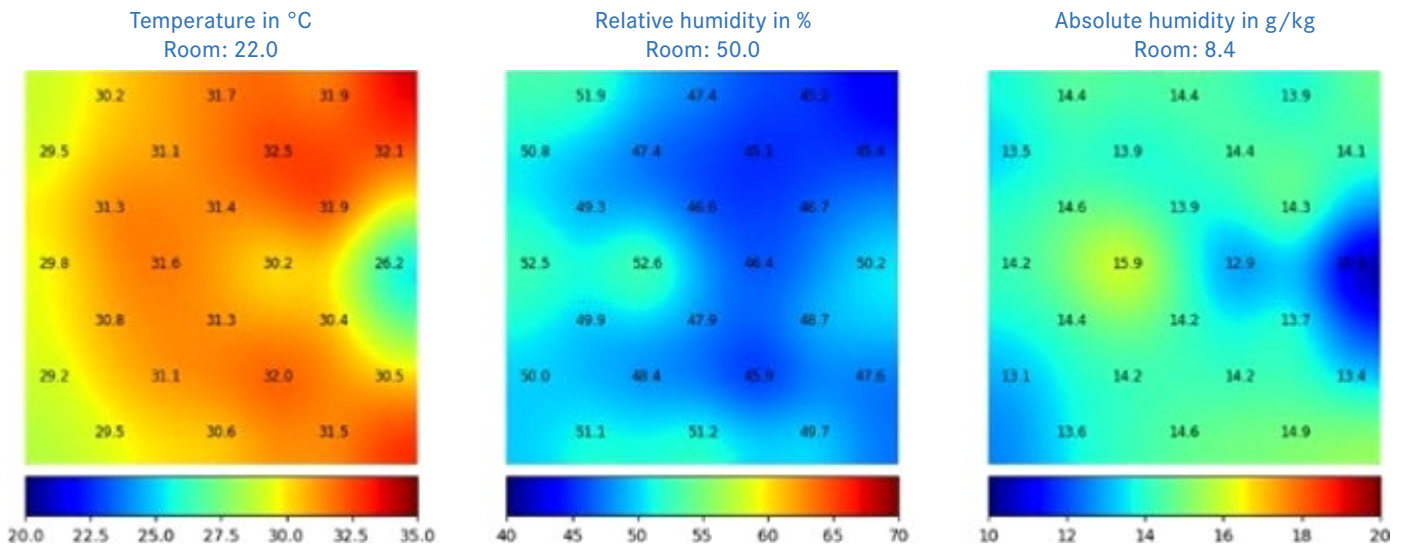
Platform:	IBM compatible PC
OS:	Windows 10 or higher
Additional Software:	MS Excel 2000 or higher

Data output

General:	T (°C), RH (%), t (sec), AH (g/kg), HI (°C) = heat index = perceived heat expression
With <i>SWEATOR</i> simulation:	Q (W/m ²), R (m ² K/W; m ² Pa/W), MVTR (g/m ² /h), under standardized conditions
CE-conformity:	yes

EVALUATION EXAMPLES – Qualitative (human) and quantitative (SWEATOR) test results

Heat and humidity map of a human on a car seat cushion, facing right.



HUMAN and SWEATOR based microclimate development – identical set of 3 comparable duvets.

