Science of sweat

SKINOS

Ventilated capsule-type flow compensating digital perspirometer
SMN-1000SR

Portable and easy to carry.

- The A5-sized case makes the SMN-1000SR easy to carry and use.
- It can be connected to a computer via a single cable.
- It supports data storage on memory cards, and the built-in battery enables usage without connecting to an external power source or device.
- It supports wireless communication using a Bluetooth LE-compatible PC or smartphone. (SMN-1000SR only)

Uses the flow compensation method.*

- It can stably measure heavy sweating.
- It is capable of high-responsivity measurements.
*Patented technology

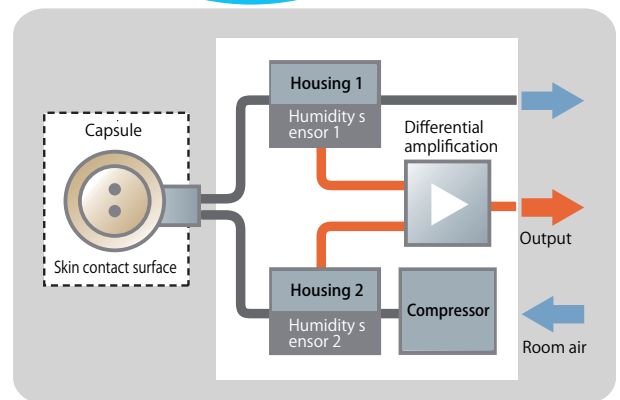**SKINOS Technology & Products**

What is a ventilated capsule-type perspirometer?

A ventilated capsule-type perspirometer is a simple perspiration meter that does not require dry air as it uses the air in the measurement environment as a reference. Air is supplied to the capsule that covers the skin, and the amount of sweat is measured from the humidity difference between the air before and after it passes through the skin.
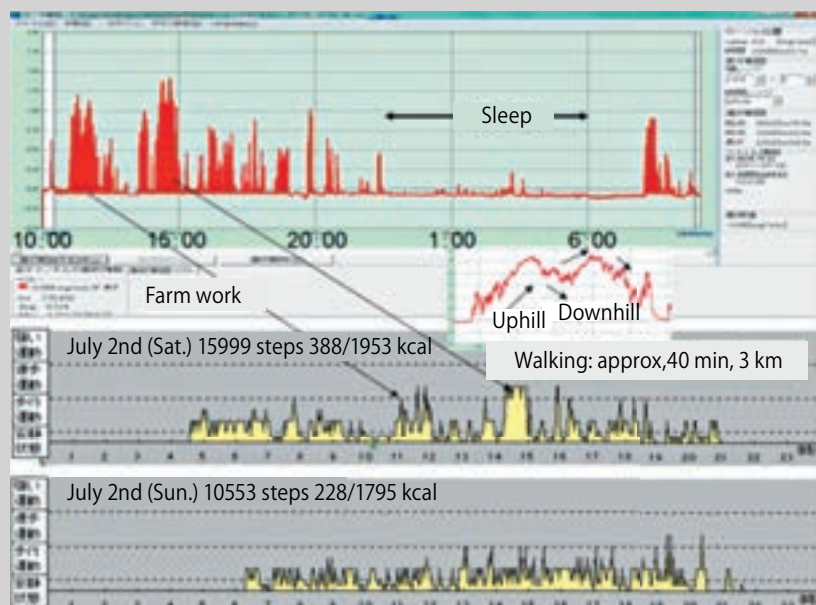
What is the flow compensation method?

When there is a small amount of sweating, the air flow rate is reduced to increase sensitivity, and when there is a large amount of sweating, the airflow rate is increased to increase the dynamic range.
Changing the airflow rate in this manner, it is possible to stably measure from small to large amounts of sweating.
The output value is adjusted to be linear with respect to the amount of sweating (the amount of water evaporated from the skin).

Capsule
Skin contact surface
Housing 1
Humidity sensor 1
Differential amplification
Output
Housing 2
Humidity sensor 2
Compressor
Room air

Use example: measurement of chest sweat rate and behavior in summer

Sleep

10:00 15:00 20:00 1:00 6:00

Farm work

Uphill Downhill

July 2nd (Sat.) 15999 steps 388/1953 kcal

Walking: approx, 40 min, 3 km

July 2nd (Sun.) 10553 steps 228/1795 kcal

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Specifications

Product name	SMN-1000S	SMN-1000SR
Major specifications		
Operating mechanism	Ventilated capsule-type differential method	
Number of channels	1Ch	
Flow rate	Flow rate compensation method (300-1,000mL)	
Analog outpu	Voltage output ±5 V *1V = 1mg/min. The voltage [V] recorded by the recorder can be converted directly into the amount of sweat [mg/(cm2・min)].	
Digital output	USB	
Wireless output	——	Bluetooth LE
Display	Measurement value display	
Memory function	Memory card	
Power supply	6 V (for battery charging)	
Built-in battery	2000 mAh (continuous operation time: 4 hours or so)	
Accessories	・Main unit ・Data transmission cable ・Dedicated memory card ・Recording analysis software ・AC adapter charger	
Recommended use conditions	Temperature: 23.5℃ Humidity: 60% RH	
Properties		
Start-up time	~1 s	
Measurement range	0-3 mg/(cm2/min)	
Accuracy (error rate)	±10% (under recommended conditions, range 0-1 mg/(cm2/min)	

Approximately 140 mm

Approx. 95mm

Approx. 40mm

Probe length: 1.5 m (standard)
*The probe length can be increased upon request, but the response characteristics will deteriorate.
Please contact us for details.

Capsule diameter: approximately 18 mm (standard)

Capsule height: approximately 12 mm (standard)

*Capsule (part attached to skin) shape can be customized.
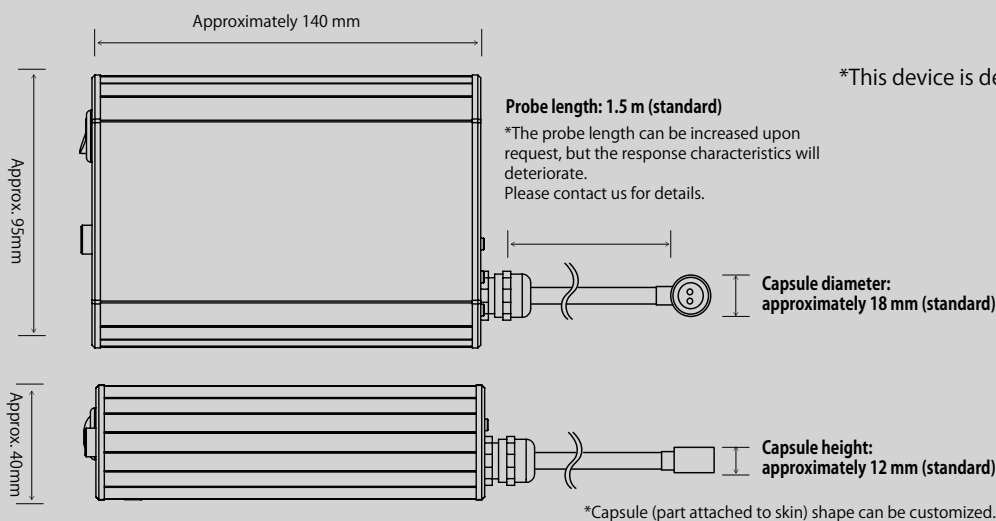
*This device is designed for research applications.