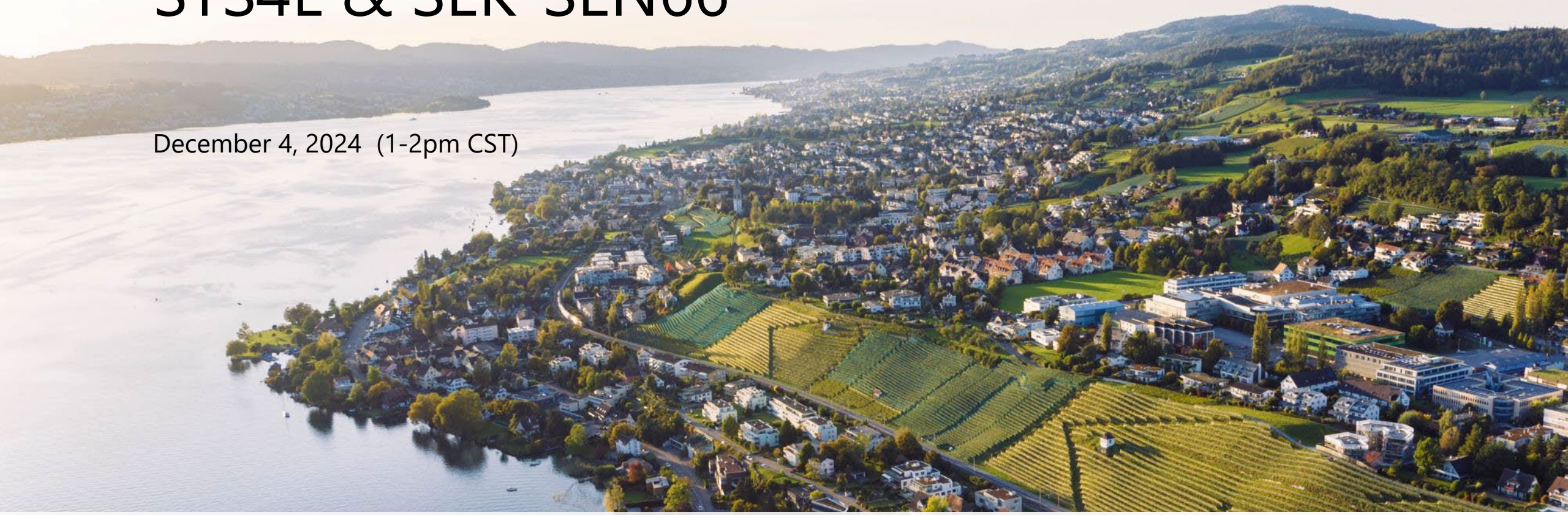
NPI DISTRIBUTION TRAINING SESSION (AMERICAS):

STS4L & SEK-SEN66



December 4, 2024 (1-2pm CST)

SENSIRION

THE PANELISTS

Negar Rafieedolatabadi
Field Application Engineer

Joseph Southworth
Field Application Engineer

Diane Haynes
Sr. Channel Sales Manager

SENSIRION

Q&A AT THE END

SENSIRION

Introduction to Sensirion's Certificate Program

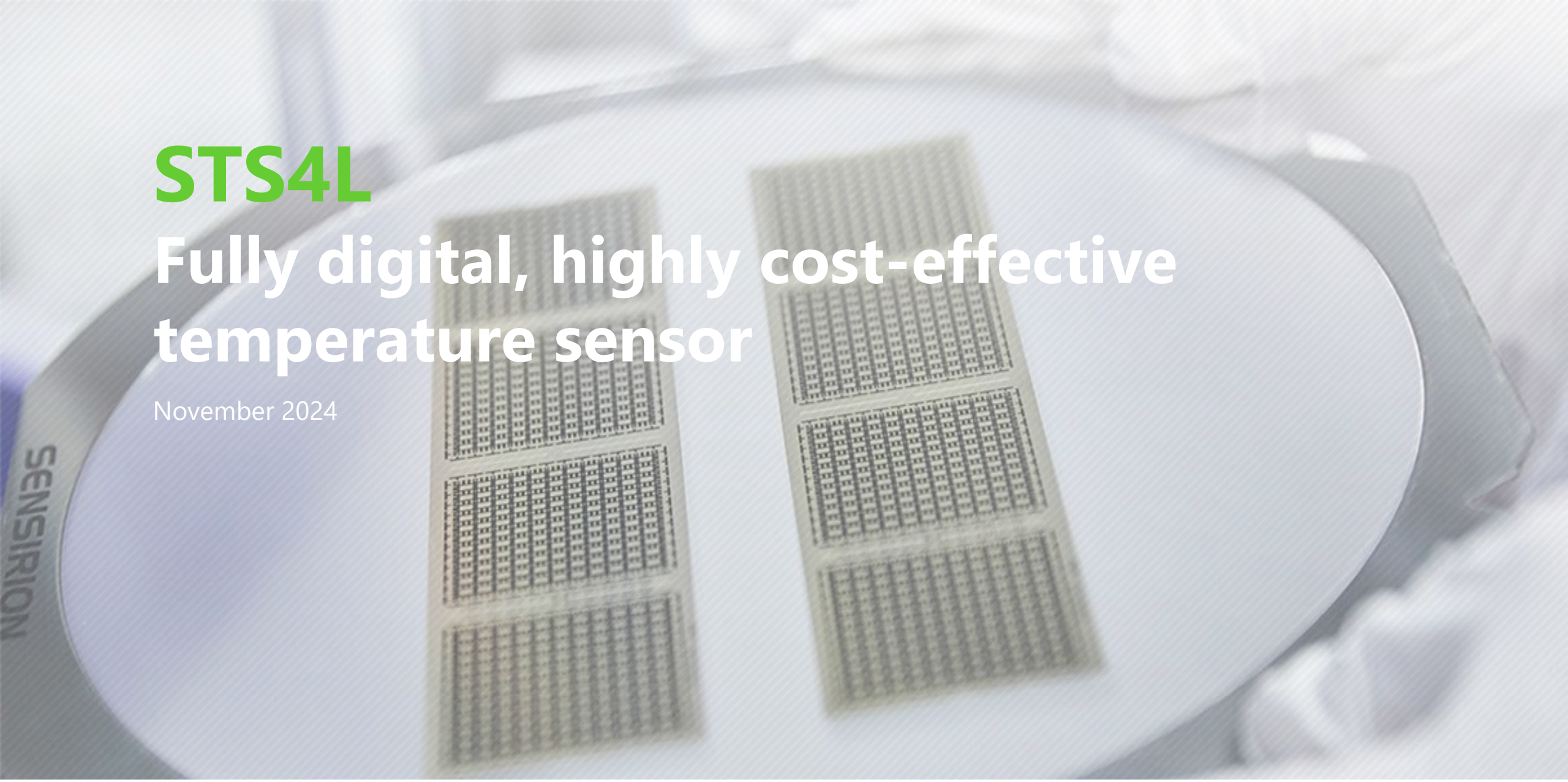
Every participant joining our NPI trainings will receive a **certificate of attendance**

There will be a **test** at the end of the training after the Q&A.

The best 3 scores at the final test will get a **personalized certificate of completion (with LinkedIn URL)** and evaluation kits of the sensors presented

We will have a virtual training every 2 NPIs and will inform you soon on the implications of the **certificate program**

STAY TUNED! ☺



STS4L

Fully digital, highly cost-effective temperature sensor

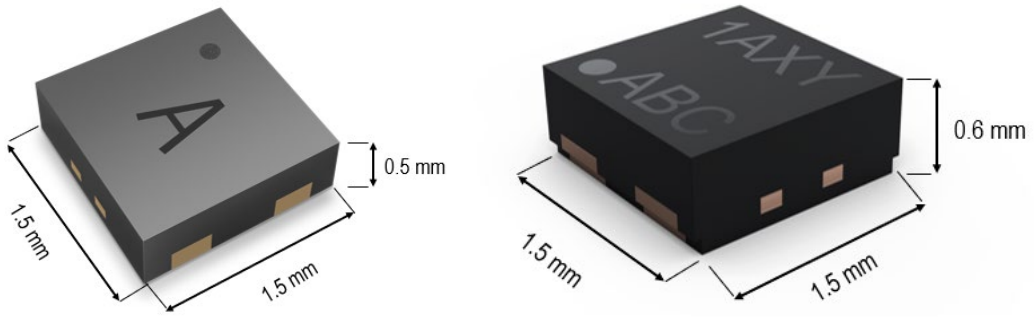
November 2024

SENSIRION

STS4X FAMILY

Power-Efficient, Reliable and Precise

Striking the right balance between performance, current consumption and price.

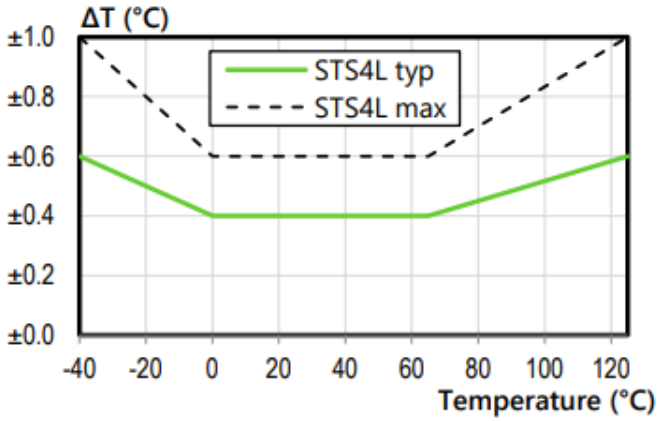


Already available	**STS40**
	STS4L
SOP 2025	**STS41A**
	STS41

STS4X Family Comparison

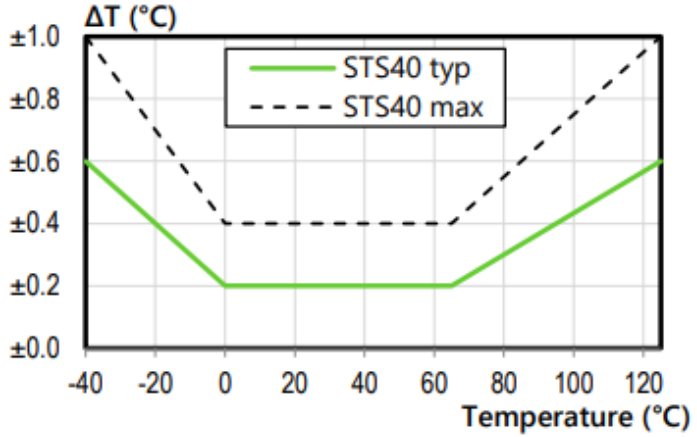
STS4L

- Ultra-low-power temperature sensor
- ±0.4°C base accuracy



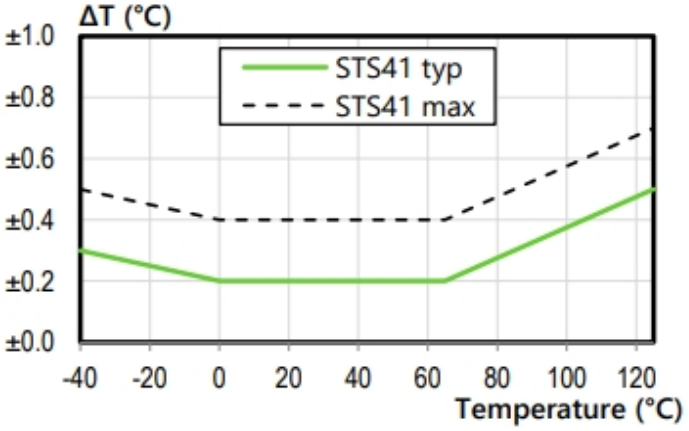
STS40

- Ultra-low-power temperature sensor
- ±0.2°C intermediate accuracy



STS41

- Ultra-low-power temperature sensor
- ±0.2°C best accuracy



STS4L comes in about 23.94% lower price compared to STS40

Significant saving in larger quantities: $1.7K in 10,000 units

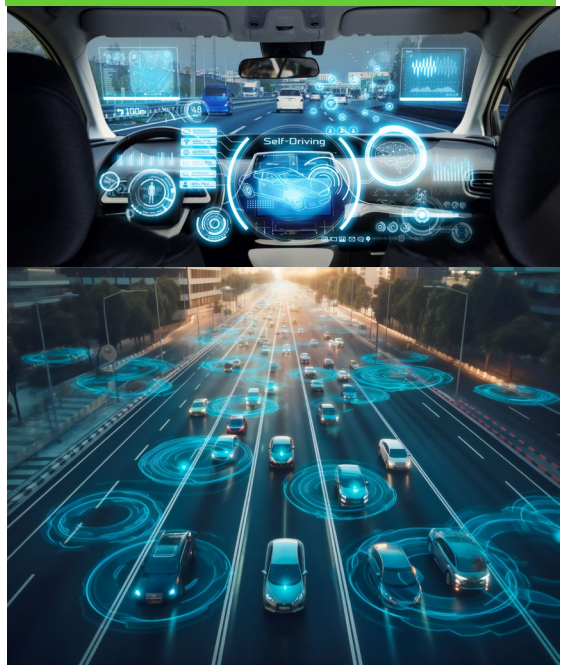
STS4x Markets

APPLIANCE

HVAC THERMOSTAT

CONSUMER ELECTRONIC

AUTOMOTIVE



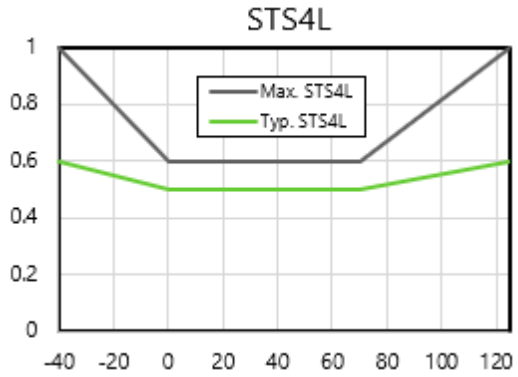
STS4x Applications

APPLIANCE CONSUMER ELECTRONIC

STS4L

Target:

- Applications with low cost
- Replace a thermistor with a digital solution
- Suitable for applications with no critical specifications
- Low power consumption (Average current 0.4 µA)

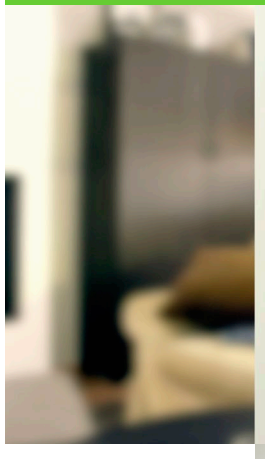


Applications:

- Home appliance: e.g. Refrigerator
- Thermal mapping: e.g. laptop

STS4x Applications

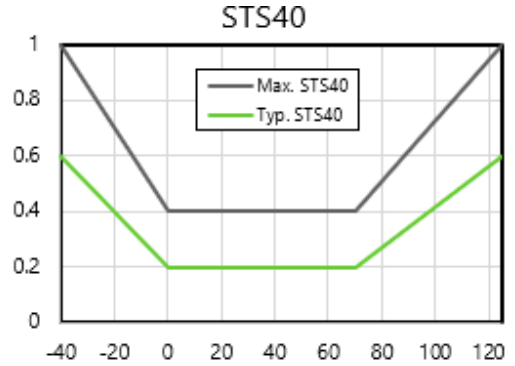
HVAC – THERMOSTAT CONSUMER ELECTRONIC



STS40

Target:

- Applications when moderate accuracy is required
- For high volume consumer electronic application
- Low power consumption (Average current 0.4 µA)



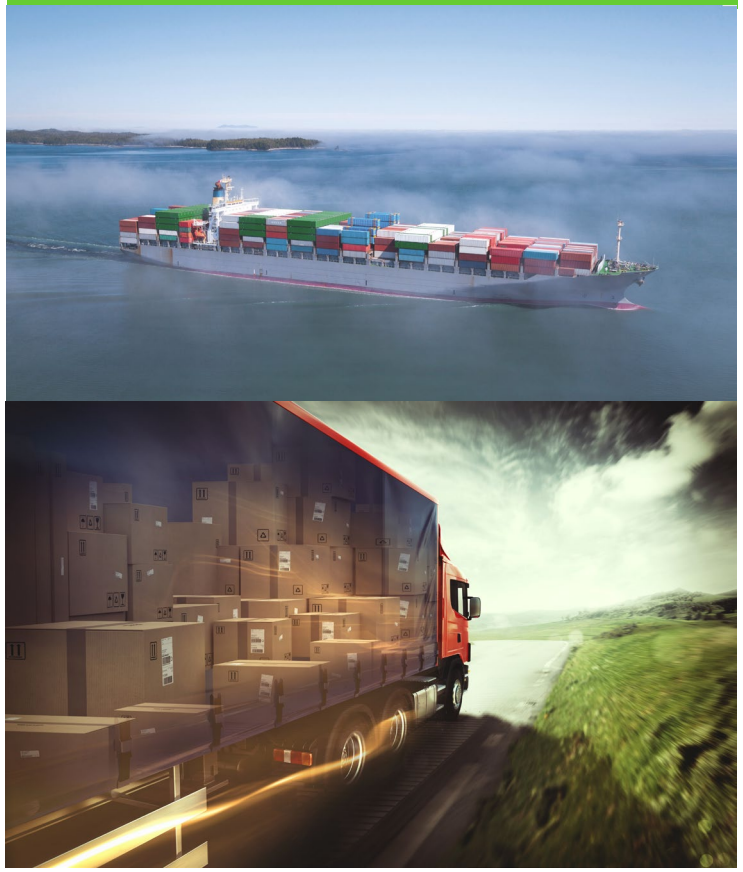
Applications:

- Thermostats
- HVAC
- Consumer electronic e.g. smart wearable

STS4x Applications

SOP Q4 2025

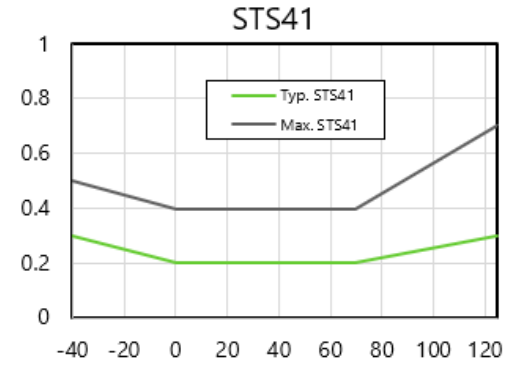
DATA LOGGERS



STS41

Target:

- Applications where accuracy is critical
- Applications that require monitoring especially at low temperature



Applications:

- Data loggers

STS4x Applications

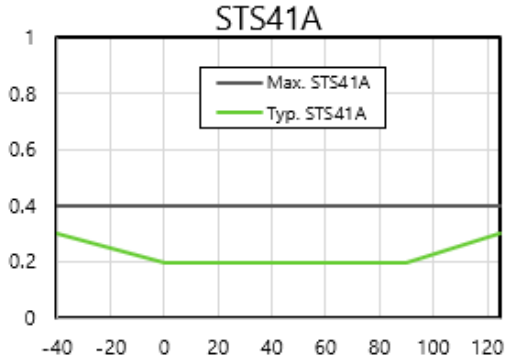
SOP Q1 2025

AUTOMOTIVE

STS41A

Target:

- Applications when high accuracy is needed
- When an automotive grade is required:
  - AEC-Q100 qualified
  - Wettable flanks



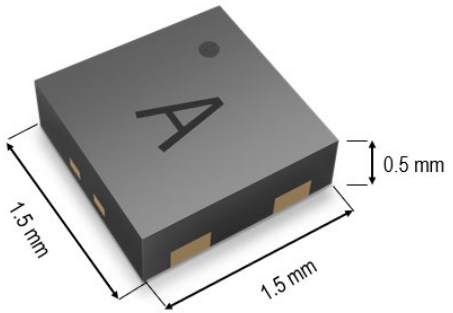
Applications

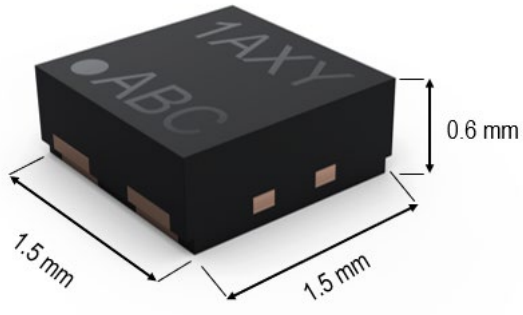
- Autonomous Driving sector:
  - LiDAR (Light Detection and Ranging)
  - Camera
  - Radar
  - Steer by wire

STS4X FAMILY

Power-Efficient, Reliable and Precise

Striking the right balance between performance, current consumption and price.





Another leap forward towards cost efficiency

High Precision

Automotive qualified

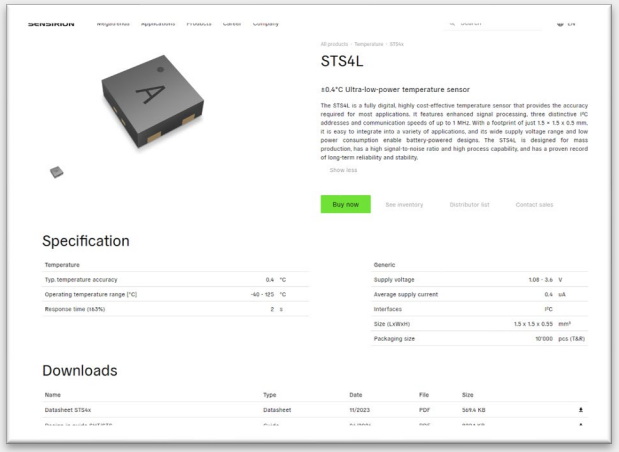
Ultra-low current consumption

Where to find useful material

NPI page in partner's portal

https://partners.sensirion.com/document/139#/humidity-and-temperature/sts4l-1

Product page



https://sensirion.com/products/catalog/STS4L

Brochure & other relevant documents

Datasheet: https://sensirion.com/resource/datasheet/sts4x
Brochure: https://sensirion.com/resource/flyer/temperature_sensors

SEK-SEN66

All-In-One Combo Solution for Air Quality Monitoring

November 2024

SENSIRION

99%

of the entire global population breathes air that exceeds WHO air quality limits, threatening health (1)

90%

of our time is spent indoors, where air pollution levels are typically 2-5x higher than outdoor levels

98.6%

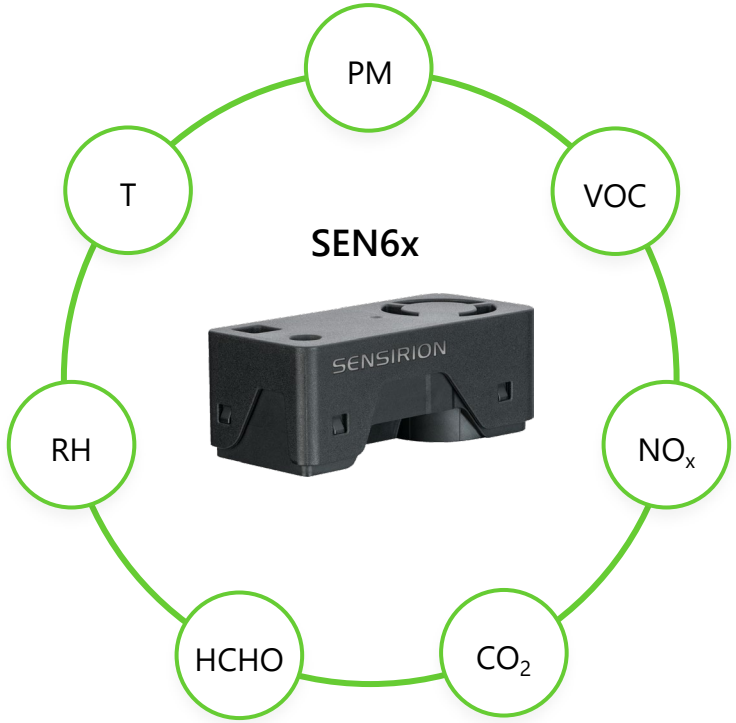
of health damage caused by indoor air is from just 3 pollutants: particulate matter, formaldehyde, and nitrogen dioxide (2)

sources:
(1) Billions of people still breathe unhealthy air: new WHO data | over 6000 cities now monitor air quality | 4 April 2022 | https://www.who.int/news/item/04-04-2022-billions-of-people-still-breathe-unhealthy-air-new-who-data
(2) Morantes, G., Jones, B., Molina, C., & Sherman, M. H. (2023). Harm from Residential Indoor Air Contaminants. Environmental Science & Technology, 58(1), 242–257. https://pubs.acs.org/doi/10.1021/acs.est.3c07374

All Sensing Capabilities in a Nutshell

The SEN6x adds Formaldehyde and Carbon Dioxide

	Q4 2025	Q4 2025	Q2 2025	Q1 2025	Q3 2025
	SEN60	SEN63C	SEN65	SEN66	SEN68
Particulate matter PM_1, $PM_{2.5}$, PM_4, PM_{10}	X	X	X	X	X
Relative humidity		X	X	X	X
Temperature		X	X	X	X
Volatile organic compounds			X	X	X
Nitrogen oxides			X	X	X
Carbon dioxide		X		X	
Formaldehyde					X



Pricing Now Available!

A Leap Ahead with SEN6x

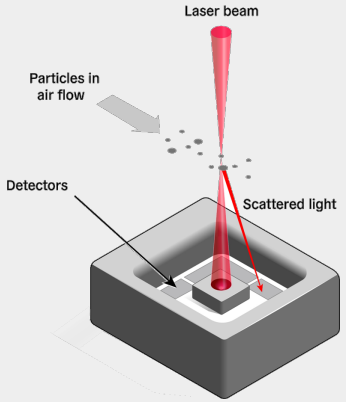
Simplifying your life

Experience the future of air quality sensing with the compact and powerful SEN6x sensing platform. Enabled by miniaturization the SEN6x combines multiple sensors in a never-before-seen form factor and can measure 9 of the most important air quality parameters, 2 more than its predecessor.

50%
smaller than SEN5x

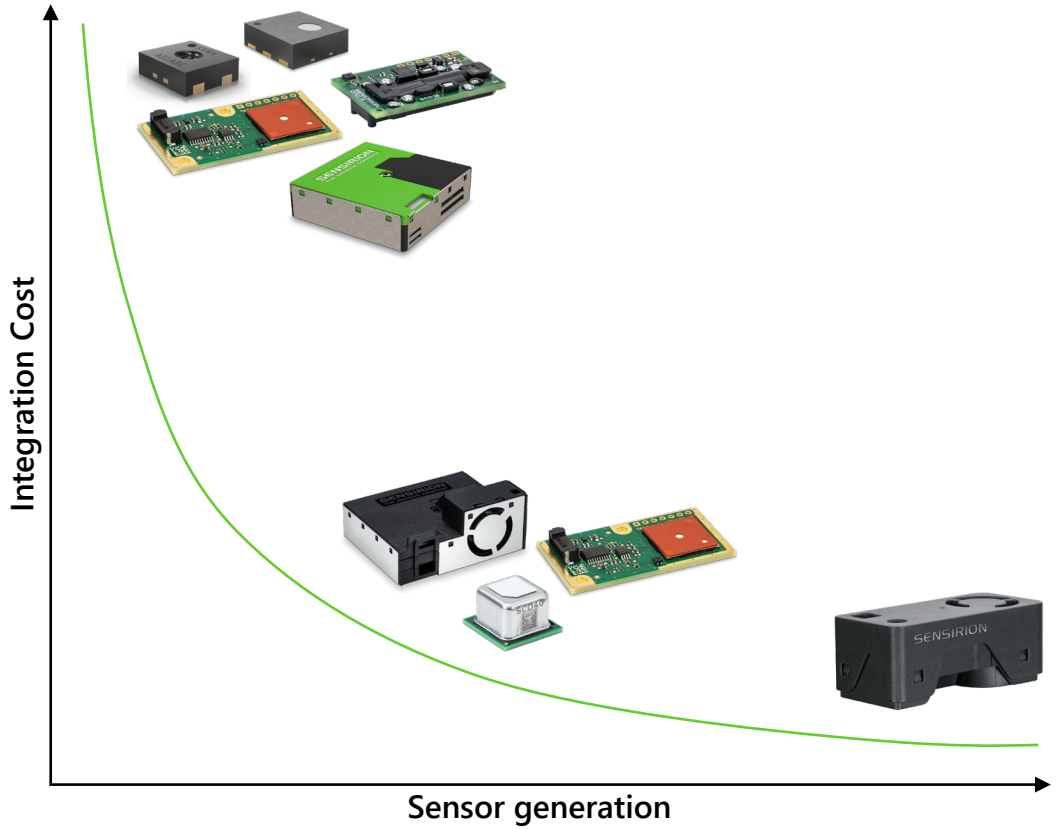
+2
air quality parameters 9 in total !

CO_2 & HCHO
for a world of difference



As Competitive as it Can Get

Shorten Time-To-Market with Plug & Play SEN Modules



Price advantage of module due to ease of integration

Save on Cables, Resources, Design-in

Record time-to-market

- 1 compact form factor
- 1 communication interface
- Installation without tools
- Integrated algorithms

Maintenance free and long lifetime
thanks to patented sheath-flow technology

Target a Wider Variety of Applications

By being more Comprehensive, Miniaturized and Competitive

Smart Home

- Indoor Air Quality Monitor
- Air Purifier
- Open Window Detection
- Smart Speaker

Office & industry

- Indoor Air Quality Monitor
- Air Purifier
- Conference sound bar
- Security camera

Schools

- Indoor Air Quality Monitor
- Air Purifier
- Vape Detection
- Pollen detector

CO_2 is a Major Differentiator

Enabling New Use Cases at Home and at Work

Improve sleep quality

- **1000ppm CO_2** results in significant worsening of sleep quality and stress levels after a night's rest (1)
- **1300ppm CO_2** decreases deep sleep duration and a significant increase in salivary cortisol (1)

Reduce absenteeism

- **10-20%** increase in absence is associated with a corresponding 1400ppm of CO_2 (2)
- **2 minutes** to breathe in a lungful of exhaled air from other occupants when CO_2 reached 1500 ppm

Enhance cognitive performance

- **21%** decrease in cognitive scores is observed with a 400ppm increase in CO_2 levels (3)
- **101%** higher cognitive function scores in environments with low VOC, low CO_2 and high ventilation rates (3)

source:
1. https://www.sciencedirect.com/science/article/pii/

source:
2. https://doi.org/10.1016/j.buildenv.2023.111118

source:
3. https://ehp.niehs.nih.gov/doi/10.1289/ehp.1510037

Yes, this is all Real CO_2

There is no alternative to a dedicated CO_2 sensor (1)

eCO_2 is a Derived Estimation

- **eCO_2** measurement is **derived from the reactions of all substances in the air**, measured with a MOX sensor
- **Key assumption** is that Hydrogen, as VOC produced by humans is proportional to their exhaled CO_2
- Strong VOC events create **false positives.** PCC*<0 (1) → flipping a coin would have produced a better result for the given test setting

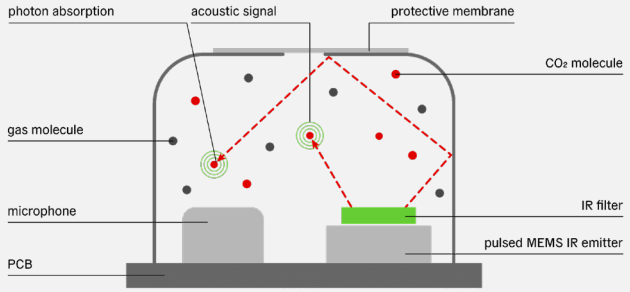
**PCC = Pearson Correlation Coefficient*

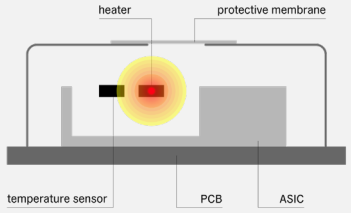
eCO_2 = f(+ + + + + +…)

source:
1. https://www.sciencedirect.com/science/article/pii/S0360132320307836

CO_2 is a Direct Measurement

- **Spectroscopy NDIR** measures how much infrared light is absorbed by CO_2 molecules
- **Photoacoustic PA NDIR** measures pressure waves generated by CO_2 molecules which absorbed infrared light
- **Thermal conductivity TC** measures thermal conductivity in air due to changes in CO_2 concentration





Getting Started with the SEK-SEN6x

The SEN6x evaluation kit makes engineering easy

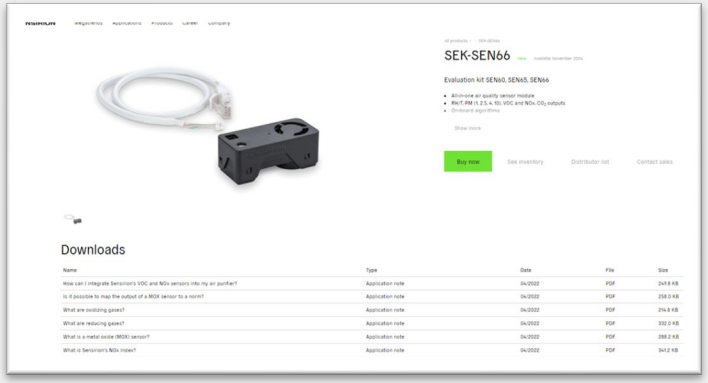
- **Quickly Evaluate** sensor performance using the SEK-SEN66 kit
- The **SEK-SEN66** includes a SEN66 sensor and an adapter cable
- A **Sensorbridge** enables the user to connect the kit to a PC
- **Controlcenter** is our free software that reads and logs data from the sensor
- **Plug and play** – No difficult setup needed
- **Available Now**

Where to find additional material

NPI page in partner's portal

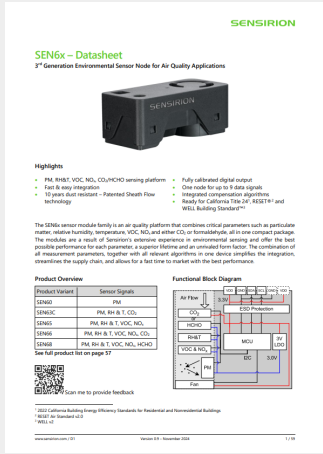
https://partners.sensirion.com/document/139#/environmental-sensor-node/sek-sen66

Product page



https://sensirion.com/products/catalog/SEK-SEN66

Datasheet & other relevant documents

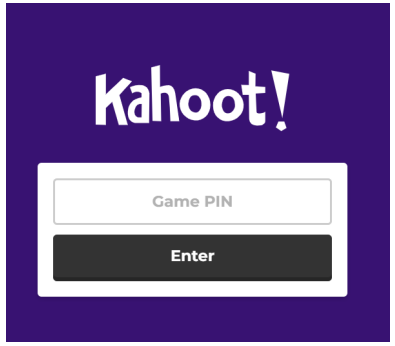


Datasheet:
https://sensirion.com/media/documents/FAFC548D/6731FFFA/Sensirion_Datasheet_SEN6x.pdf

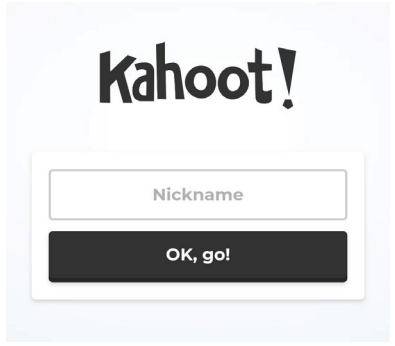
SENSIRION

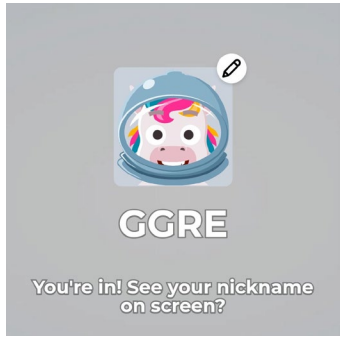
Kahoot!

1. Scan the QR code and enter the PIN on the screen

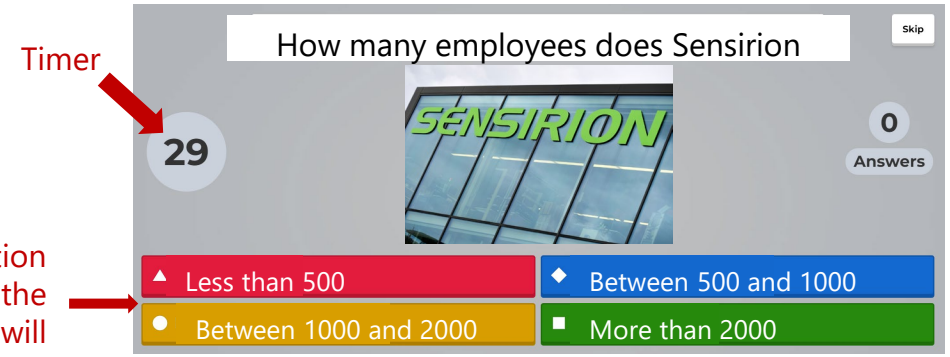


2. Enter your **Full Name** (do not put in abbreviation or nickname) and wait for the quiz to start



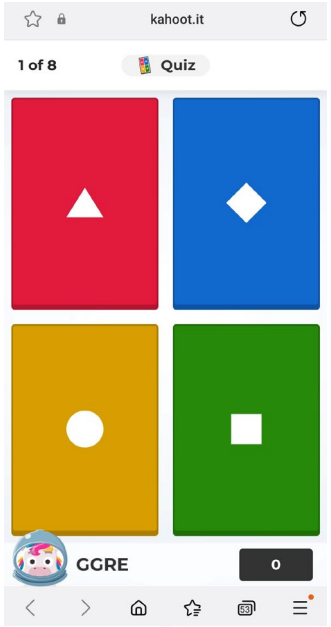


3. Test yourself!

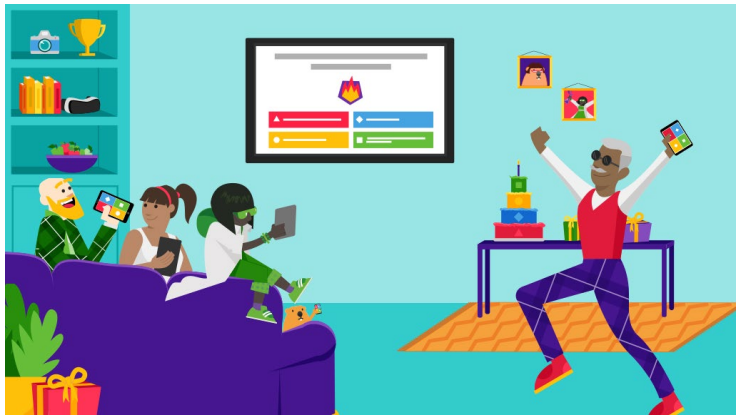


The question and the answers will be visualized on the screen

Click on the symbol corresponding to the correct answer



4. Enjoy it!



SENSIRION

SENSIRION