

SEZA



SEZO EM

indoor air quality monitoring (Volatile Organic Compounds - VOCs)

sending data to Orange Live Objects platform via LTE-M

measuring various parameters i.e. temperature, humidity, atmospheric pressure, sound level, level of light

powered by two high-power batteries

PIR (infrared) sensor

OTA (over the air) configuration, no cables needed

built-in accelerometer and magnetometer informing about object movement and orientation

flexibility & configurability (threshold configuration for all measured parameters)



POTENTIAL USE CASES



FACILITY MANAGEMENT

SEZO EM makes refineries and chemical production companies more *secure*.

Facility managers leverage the **SEZO EM** device to measure shocks and movements of critical facility components and machinery, thanks to the built-in *accelerometer*.

The device can be adjusted to client's individual needs, involving the measurement of *basic environmental parameters*, i.e. temperature, humidity, atmospheric pressure and sound levels. The device has an integrated *alarm threshold configuration*, giving the user the capability to adjust alarm thresholds of all measured parameters (e.g. light and acoustic intensity).

The device is capable of sending data to the Orange Live Objects platform via LTE-M.

end device

IoT

environment
monitoring

health & security

smart building

indoor/outdoor



PUBLIC INSTITUTIONS

SEZO EM makes public institutions more *comfortable* and more *efficient*.

Public facilities like libraries, museums or city halls leverage **SEZO EM** capabilities such as monitoring temperature, humidity, sound level, and illumination to *make the space more comfortable and efficient*. Thresholds for the measured parameters can be set individually through the build-in *alarm threshold configuration*.

The *integrated accelerometer* enables measurement of shocks and/or movements (e.g. of objects such as doors or exhibition pieces) and can potentially decrease response time of facility security (more reliable than CCTV).

The device is capable of sending data to the Orange Live Objects platform via LTE-M.

end device

IoT

comfort
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smart building

indoor/outdoor

POTENTIAL USE CASES



SCHOOLS

SEZO EM makes school a *safe and comfortable place* for children and staff.

School management leverages **SEZO EM** to monitor *indoor air quality* inside classrooms. Paints or plastic toy parts can release volatile chemicals when exposed to heat. These can cause breathing problems, nausea, and pinched eyes – which is why it is important to regularly check the effectiveness of ventilation in school rooms.

The device is **battery-powered**, and can therefore be used *conveniently in various locations*. A single battery can last for up to 5 years of constant usage, making the usage hassle-free.

The device is capable of sending data via LoRaWAN to the Orange Live Objects platform.



INDUSTRIAL PRODUCTION SITES

SEZO EM enhances security processes at *industrial manufacturing sites*.

The device is capable of sending data to the Orange Live Objects platform via LTE-M and pulls data from the environment like e.g. sound levels. **SEZO EM** device is powered by two 6Ah batteries.

The device has an integrated PIR (infrared) sensor, commonly used in alarm systems and automatic lighting systems, so it can detect the presence of people. The built-in light sensor, on the other hand, helps to monitor lighting in rooms.

The device has an *alarm threshold configuration* for all measured parameters.

end device

IoT

schools

health & security

battery-powered

indoor/outdoor

end device

IoT

industrial

health & security

indoor

outdoor

SEZO EM - TECHNICAL SPECIFICATIONS

DESCRIPTION	<ul style="list-style-type: none"> - Compact sensor device measuring environmental parameters, luminosity, noise, with a built-in accelerometer, magnetometer and motion detection - Suitable for indoor and outdoor environment monitoring - Measuring VOC (volatile organic compounds) - LTE-M communication protocol, band B8 and B20 - GNSS geolocation (optional) - Integrated with Orange Live Objects Platform
MEASURED PARAMETERS	VOC concentration, Temperature, Humidity, Air Pressure, Luminosity, Noise, Acceleration, Motion (PIR)
OPERATING TEMPERATURE	-30 ÷ 60°C
MEASUREMENT RANGE AND ACCURACY	<ul style="list-style-type: none"> - IAQ (Indoor Air Quality), range 0-500, typ. ±15, measurement resolution 1 - Temperature: -30 ÷ 60°C, typ. ±0.3°C, max ±1°C - Humidity: 0 ÷ 100%, typ. ±2%, max. ±5% @25°C - Air pressure: 260 ÷ 1260 hPa, ±1 hPa - Luminosity: 0 ÷ 1000 lx, typ. ±50 lx - Noise: 40 ÷ 100dB, ±6dB at voice frequency band - Accelerometer: 0 ÷ ±157 m/s², max. ±7% - Magnetometer: 0 ÷ ±49gauss, max. ±7% - PIR motion detection: 15m range for human-sized object
COMMUNICATION PROTOCOL	LTE-M; microSIM (eSIM/Soft SIM options)
FREQUENCY AND TRANSMISSION POWER	LTE-M band, maximum 33 dBm
DATA TRANSMISSION INTERVAL	Default 15 minutes or event-triggered (configurable OTA)
POWER SUPPLY	2x 3.6V high-power lithium ER26500M batteries
ENCLOSURE AND MOUNTING	IP55, polycarbonate, four screw holes
WEIGHT	300g
PRODUCT DIMENSIONS	Length 113 mm, height 80 mm, width 60 mm



About WiRan

WiRan Sp. z o.o. is a company providing R&D services on a B2B basis to national and international clients in the space, maritime, railway, industrial and IoT sectors. Our expertise lies in Radio Frequency and Wireless technologies, the development of electronic parts, fast product prototyping, feasibility studies, certifications and EMC testing. Founded in 2002, we are looking back at soon to be 20 years as a HW design office - supporting our diverse clients from the conception through prototyping to product quality development of electronic devices. You can find our designs mounted around Tricity (air quality measuring systems), and soon also in space (satellite communication modules), just to name a few.

WiRan offices and laboratories are currently located in Gdynia, Poland.

About SEZO

SEZO is a suite of products that can be best described as long range, customizable IoT solutions. SEZO products are based on LoRaWAN™ and LTE-M / NB-IoT technology and can be customized by clients, based on their needs.