ECO

GRAVITON

OVER **7 000 000** HUMAN
DEATHS ARE ANNUALLY
CAUSED BY AIR POLLUTION

PROPER ECOLOGICAL
REGULATORY ACTIONS
ARE IMPOSSIBLE WITHOUT
RELIABLE AND ROBUST DATA
ON THE POLLUTION FORM

SOMOV Design Bureau is a resident of the Skolkovo innovation center. Our company has got solid experience in creating high-tech products.

We develop and manufacture IIoT devices, including equipment for process flow control, security system elements and multi-sensor detectors for various parameters.

The air pollution problem is one of the global issue of modern age. We've started investigating this problem several years ago.

We firmly believe that reliable and robust data on the environment conditions is the starting point to regulate the anthropogenic adverse impact.

Therefore, nowadays we are prioritising this issue being confident our efforts can help reducing the frightening statistics of human deaths caused by diseases associated with air pollution.

By creating robust, efficient and easy-to-maintenace equipment we open up new opportunities for environmental programs aimed to improve the ecological situation and the quality of life.

Portable air quality monitoring system measuring the air compounds and criteria pollutant

Designed to measure concentration of gases, particulate and meteorological parameters

CO	CO2	NO	NO2	O3	H2CO
HCL	H2S	SO2	NH3	CL2	CH4
VOC					

GRAVITON manifests a new approach to environmental monitoring. It stands out for such distinctive features as compact monoblock design, high measurement accuracy and low maintenance.

Monitoring system components

The monitoring system is composed of an automatic stations network and a cloud service enabling to store, analyze and display the received data.
The stations measure meteorological parameters and criteria pollutant concentration in the air 2 times per minute and transmit the received data to the cloud service

The station metal casing encloses a measuring module, a power supply, a microcontroller and a GSM / NBIoT modem. It supports connection up to 30 additional external measuring elements. The data exchange and accessary power supply is carried out via the 4-wire address line with a length of up to 1,000 m

Precise gases measurement

Precise measurement of the gases content cannot be carried out without temperature regulation during the air sampling

The measurement chamber module keeps precisely up all the necessary conditions

Parameters	Range	Tolerance
Temperature	30°C	± 0.1°C
Flow Rate	0,5 l / min	± 0,01 l / min

The air sampling is carried out in a special measurement chamber with the steady temperature and flow rate

Easy maintenance

The environmental monitoring systems maintenance is the main complicated issue in course of utilisation. Without expensive equipment and high-qualified personnel the work cannot be done properly.

The removable measurement chamber module solves this problem and reduces the costs.

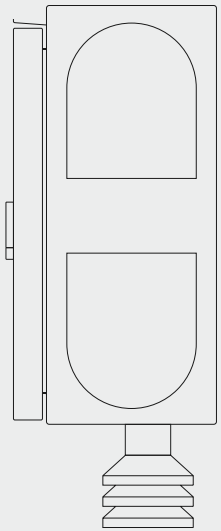
Scheduled maintenance	Recurrence	Duration
Filter change	3 months	15 minutes
Adjustment	6 months	
Calibration	12 months	

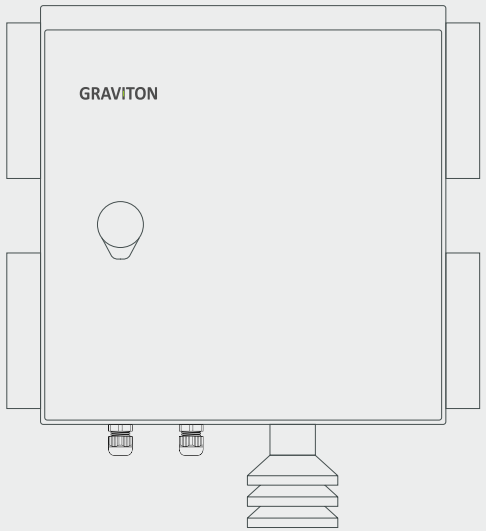
The cartridge installation and dismounting can be carried out without costly specialists. It is sent to our service center for maintenance and calibration. After the scheduled maintenance, the cartridge is easy to be installed

	GRAVITON	aeroqual	airpointer
Cost	18 000 USD	46 000 USD	60 000 USD
Sample preparation	●	●	●
Calibration in situ / remotely	◐	●	●

Technical Specifications

Thermal conditions	-40 + 55 °C
Power requirement	180 - 250 V / DC 14 V , 450 W
Overall dimension / Weight	390 x 350 x 155 мм / 18,5 kg.
PM 2.5; Pm10 Channel	0-100 mkg/m3 (± 10%)
Thermal Channel	-50 + 70 °C (± 2%)
Relative Humidity Channel	1-100 % (± 3%)
Luminosity Channel	0- 10 000 lux (± 5%)
Microacceleration Channel	1-16 m/c2 (± 10%)
Gases Channel (see chart) measurement accuracy	(± 10%)
Communication interfaces	RS-485, Wi-Fi, 3G, Ethernet
Communication protocols	RS232, MQTT, Modbus





CO	(Carbon Monoxide)	100 - 40 000 ppb
Co2	(Carbon Dioxide)	400 - 5 000 ppm
NO	(Nitrogen Oxide)	10 - 7 000 ppb
No2	(Nitrogen Dioxide)	10 - 5 000 ppb
O3	(Ozon)	10 - 40 000 ppb
H2CO	(formaldehyde)	10 - 5 000 ppb
HCL	(Hydrogen Chloride)	10 - 40 000 ppb
H2S	(Hydrogen Sulfide)	10 - 40 000 ppb
So2	(Sulfur Dioxide)	10 - 40 000 ppb
Nh3	(Ammonia)	10 - 30 000 ppb
Cl2	(Chlorine)	10 - 40 000 ppb
Ch4	(Methane)	10 - 40 000 ppb
VOC	(Volatile Organic)	100 - 50 000 ppb

Equipment Purchase

When purchasing equipment, it is necessary to take into account the ownership cost consisting of periodic maintenance, calibration and scheduled sensors replacement (at the end of the service life)

Nonrecurring Costs
Станция 18 000 USD

Annual Costs	
Maintenance	700 USD
Calibration	1 000 USD
Materials	600 USD
cloud service	450 USD

The prices are given for the basic configuration, comprising sensors for temperature, humidity, pressure, light, vibration, particulate matter, VOC, 1 spectroscopic and 4 electrochemical sensors

Equipment Rent

When renting equipment, the maintenance expenses and cloud service are included in the rental cost. Transportation and travel expenses are paid additionally

Rental Period	Cost
3 months	2 600 USD
6 months	4 600 USD
12 months	7 800 USD

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Solutions for air quality and parameters monitoring

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