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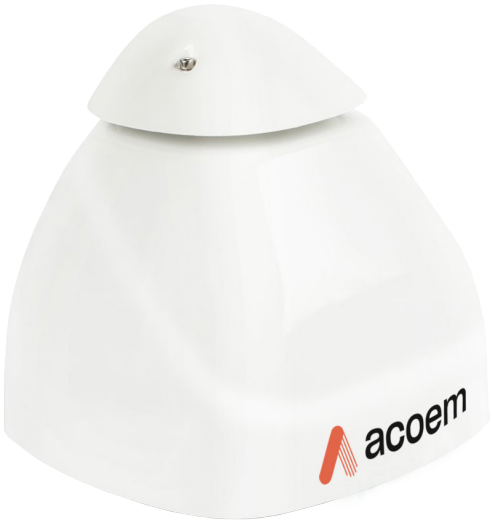


Air Pro

The air quality monitoring station for professionals

SENSOR BASED | BEST AVAILABLE ACCURACY

After 7 years designing and deploying small air quality stations all over the world, we have created the new Kunak AIR Pro, a huge evolution of our previous sensor based air quality monitoring station, designed to solve all the lifecycle challenges of a sensor-based air quality product, its operation and maintenance, as well as the need of every environmental project.

Its multipollutant cutting-edge design includes environmental sensors as well as connectors for external weather sensors or probes which, together with its solar panel operation and real-time wireless data transmission, makes the Kunak AIR Pro the most advanced air quality monitoring station on the market.

Easy & Fast installation
Set up in less than 10 minutes with visual diagnosis in a built-in display.

Cartridges system
Replace and combine pollutant sensors with a plug & play system.

Proven accuracy
Proven as the best-in-class system by independent organizations.

Easy calibration
Adjust the baseline and span remotely.

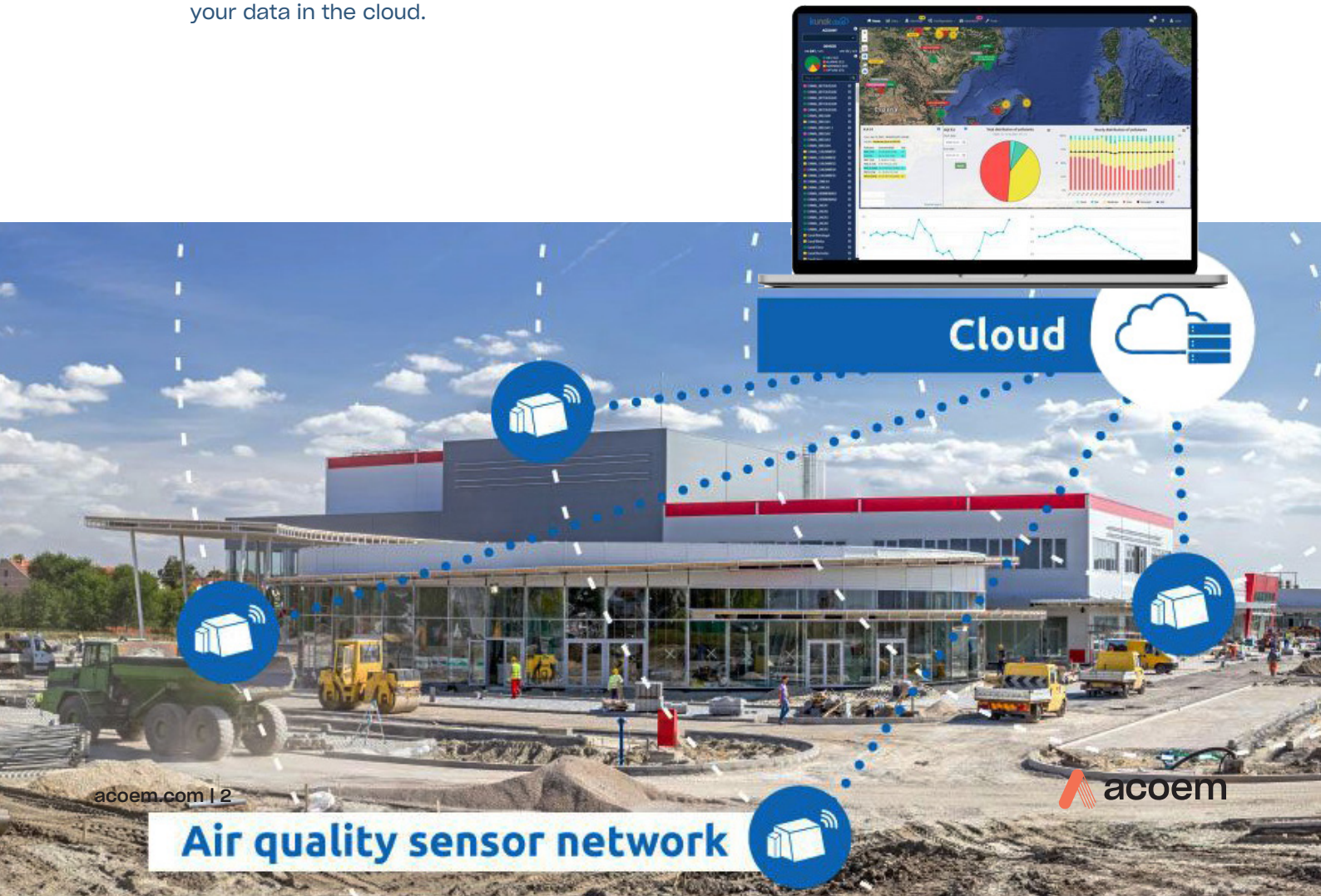
Air quality platform
Visualize, analyse and manage your data in the cloud.

Multi pollutant
Measure up to 5 gases and particulate matter at once.

Fully autonomous
Autonomous operation with its built-in battery and solar panel.

Real-time data
Access to your data and alarms in real-time.

Add environmental sensors
Connect wind, rain, noise, and other sensors.



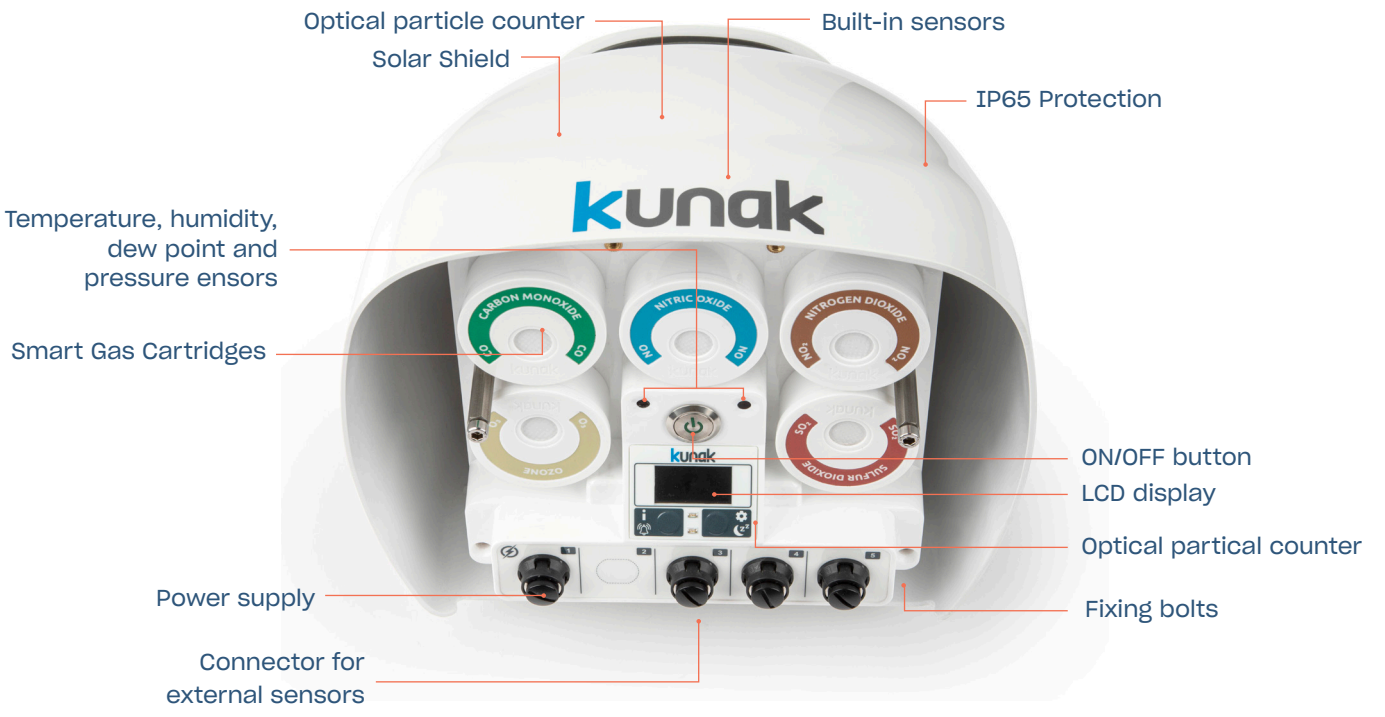
SPECIFICATIONS

Dimensions	257 x 270 x 225 mm
Weight	< 3.5 kg
Enclosure	PMMA & Polycarbonate & Stainless steel
Operating temp	- 20 ºC to 60 ºC
Operating RH	0 to 99 %RH
IP rating	IP65
Battery	Lithium 2.9 Ah or 26 Ah
External supply	7 – 12 Vdc. Charger or Solar panel
Autonomy	24/7 with charger or solar panel
Power consumption	0.08 - 1.2 W (depending on configuration)
Communications	Multi-Band 2G/3G/4G | Ethernet | Modbus RTU Slave
GNSS	GPS and GLONASS

Gas sensors	CO, CO_2, NO, NO_2, O_3, SO_2, H_2S, NH_3 & VOC_s
PM sensor	PM_1, $PM_{2.5}$, PM_4, PM_{10} TSP and TPC
Internal status	Temperature | Battery | Charging voltage & current | Signal
Built-in sensors	Temperature | Humidity | Atmospheric pressure | Dew point
Connectors	#1: Power 7V to 12V or Ethernet #2: Modbus RTU Slave #3: Sound meter, UV #4: WBGT, Pyranometer, Modbus RTU Master #5: Anemometer & Rain Gauge
Sampling freq.	3Hz gases, 0.25Hz particles
Avg. periods	From 10 seconds to a maximum of 24 hours
Sending periods	From 5 minutes to a maximum of 24 hours
Remote management	Bidirectional communications Remote configuration and calibration
SIM	Embedded eSIM and SIM holder

COMMUNICATAIONS

GSM GPRS 2G 3G 4G Lte Ethernet Modbus RTU SLAVE



TECHNICAL SPECS

	CO	CO_2	NO	NO_2	O_3	H_2S	SO_2	NH_3	VOCs
Type	Electro-chemical	Non-dispersive infrared (NDIR)	Electro-chemical	Electro-chemical	Electro-chemical	Electro-chemical	Electro-chemical	Electro-chemical	Photo-ionization detector
Unit of measurement	µg/m³, ppb (A) mg/m³, ppm (B)	mg/m³, ppm	µg/m³, ppb	µg/m³, ppb	µg/m³, ppb	µg/m³, ppb (A) mg/m³, ppm (B)	µg/m³, ppb	mg/m³, ppm	µg/m³, ppb (A) mg/m³, ppm (B)
Measurement range (1)	0 - 12,000 ppb (A) 0 - 500 ppm (B)	0-5,000 ppm	0-5,000 ppb	0-5,000 ppb	0-2,000 ppb	0 - 2,000 ppb (A) 0 - 20 ppm (B)	0-10,000 ppb	0-50 ppm	0 - 3,000 ppb (A) 0 - 40 ppm (B)
Resolution (2)	1 ppb (A) 0.01 ppm (B)	1 ppm	1 ppb	1 ppb	1 ppb	1 ppb (A) 0.01 ppm (B)	1 ppb	0.01 ppm	1 ppb (A) 0.01 ppm (B)
Operating temp. range (3)	-30 to 50 °C	-20 to 50 °C	-30 to 40 °C	-30 to 40 °C	-30 to 40 °C	-30 to 50 °C	-30 to 40 °C	-10 to 50 °C	-40 to 60 °C
Operating RH range (4)	0 to 99 %RH	0 to 99 %RH	0 to 99 %RH	0 to 99 %RH	0 to 99 %RH	0 to 99 %RH	0 to 99 %RH	0 to 99 %RH	0 to 99% RH
Recommended RH range (4)	15 to 90 %RH	15 to 95 %RH	15 to 85 %RH	15 to 85 %RH	15 to 85 %RH	15 to 90 %RH	15 to 90 %RH	15 to 90 %RH	0 to 99% RH
Operating life (5)	> 24 months	> 7 years	> 24 months	> 24 months	> 24 months	> 24 months	> 24 months	> 24 months	10,000 hours
Guarantee range (6)	1,000 ppm	-	20 ppm	20 ppm	20 ppm	100 ppm	100 ppm	100 ppm	50 ppm (A) 60 ppm (B)
LOD - Limit of Detection (7)	10 ppb (A) 0.02 ppm (B)	-	2 ppb	2 ppb	3 ppb	2 ppb (A) 0.01 ppm (B)	3 ppb	0.02 ppm	1 ppb (A) 0.01 ppm (B)
Repeatability (8)	20 ppb (A) 0.05 ppm (B)	-	4 ppb	4 ppb	4 ppb	4 ppb (A) 0.01 ppm (B)	5 ppb	0.03 ppm	5 ppb (A) 0.02 ppm (B)
Response Time (9)	< 30 sec (A) < 180 sec (B)	< 30 sec	< 30 sec	< 60 sec	< 70 sec	< 60 sec	< 60 sec	< 45 sec	< 12 sec (A) < 10 sec (B)
Typical Accuracy - MAE (10)	± 80 ppb (A) ± 0.1 ppm (B)	±30 ppm	±4 ppb	±5 ppb	±8 ppb	± 10 ppb (A) ± 0.05 ppm (B)	±15 ppb	±0.3 ppm	± 10 ppb (A) ± 0.1 ppm (B)
Typical precision - R^2 (10)	> 0.85	-	> 0.9	> 0.85	> 0.9	> 0.8	> 0.7	-	> 0.99
Typical Slope (10)	0.78 - 1.29	-	0.9 - 1.12	0.78 - 1.29	0.85 - 1.18	0.78 - 1.29	0.78 - 1.29	-	0.99 - 1.002
Typical Intercept (a) (10)	-50 ppb ≤ a ≤ +50 ppb (A) -0.1 ppm ≤ a ≤ +0.1 ppm (B)	-	-2 ppb ≤ a ≤ +2 ppb	-4 ppb ≤ a ≤ +4 ppb	-3 ppb ≤ a ≤ +3 ppb	-2 ppb ≤ a ≤ +2 ppb (A) -0.02 ppm ≤ a ≤ +0.02 ppm (B)	-5 ppb ≤ a ≤ +5 ppb	-	-9 ppb ≤ a ≤ +9 ppb (A) -0.08 ppm ≤ a ≤ +0.08 ppm (B)
DQO - Typical U(exp) (11)	< 20%	-	< 20%	< 25%	< 20%	NA	< 25%	NA	NA
Typical intra-model variability (12)	< 3 ppb (A) < 0.05 ppm (B)	-	< 1 ppb	< 1 ppb	< 1 ppb	< 2 ppb (A) < 0.02 ppm (B)	< 3 ppb	< 0.1 ppm	< 3 ppb (A) < 0.1 ppm (B)

1. Measurement range: concentration range measured by the sensor.
2. Resolution: smallest unit of measurement that can be indicated by the sensor.
3. Operating temperature range: temperature interval at which the sensor is rated to operate safely and provide measurements.
4. Operating RH range (Recommended RH range): humidity interval at which the sensor is rated to operate safely and provide measurements.
5. Operating life: lifetime of the sensor at normal conditions.
6. Guarantee range: limit covered by the guarantee.
7. LOD (Limit Of Detection): measured at laboratory conditions at 20°C and 50% RH. The limit of detection is the minimum concentration that can be detected as significantly different at zero gas concentration, based on the metric from the Technical Specification CEN/TS 17660-1:2022.
8. Repeatability (measured at laboratory conditions at 20°C and 50% RH): closeness of the agreement between the results of successive measurements of the same measure carried out under the same conditions of measurement, based on the metric from the Technical Specification CEN/TS 17660-1:2022.
9. Response time: time needed by the sensor to reach 90% of the final stable value.
10. Statistical metric: statistics obtained between hourly measurements of the device and the reference instruments for 1 to 8 months field test between -10 to +30 °C in different countries. (*) The expected error for PM10 is higher in presence of coarse particles.
11. DQO-Typical U(exp): Data Quality Objetive expressed as the Expanded Uncertainity in the Limit Value obtained between hourly measurements of the device and the refe-rence instruments for 1 to 8 months field test between -10 to +30°C in different countries, based on the metric from the European Air Quality Directive 2008/50/EC and from the Technical Specification CEN/TS 17660-1:2022. (*) The expected error for PM10 is higher in presence of coarse particles.
12. Typical intra-model variability: calculated as the standard deviation of the three sensor means in 1 to 8 months field test between -10 to +30°C in different countries.

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CREATING ENVIRONMENTS OF POSSIBILITY