kunak 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 an 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 cartridges with a plug & play system.

Proven accuracy

Designed for type approval & certi cation.

Easy calibration

Adjust the baseline and span remotely.

Air quality platform

Visualize, analize and manage your data in the cloud.

Multi pollutant

Measure up to 5 gases and particulate matter at once.

Fully autonomous

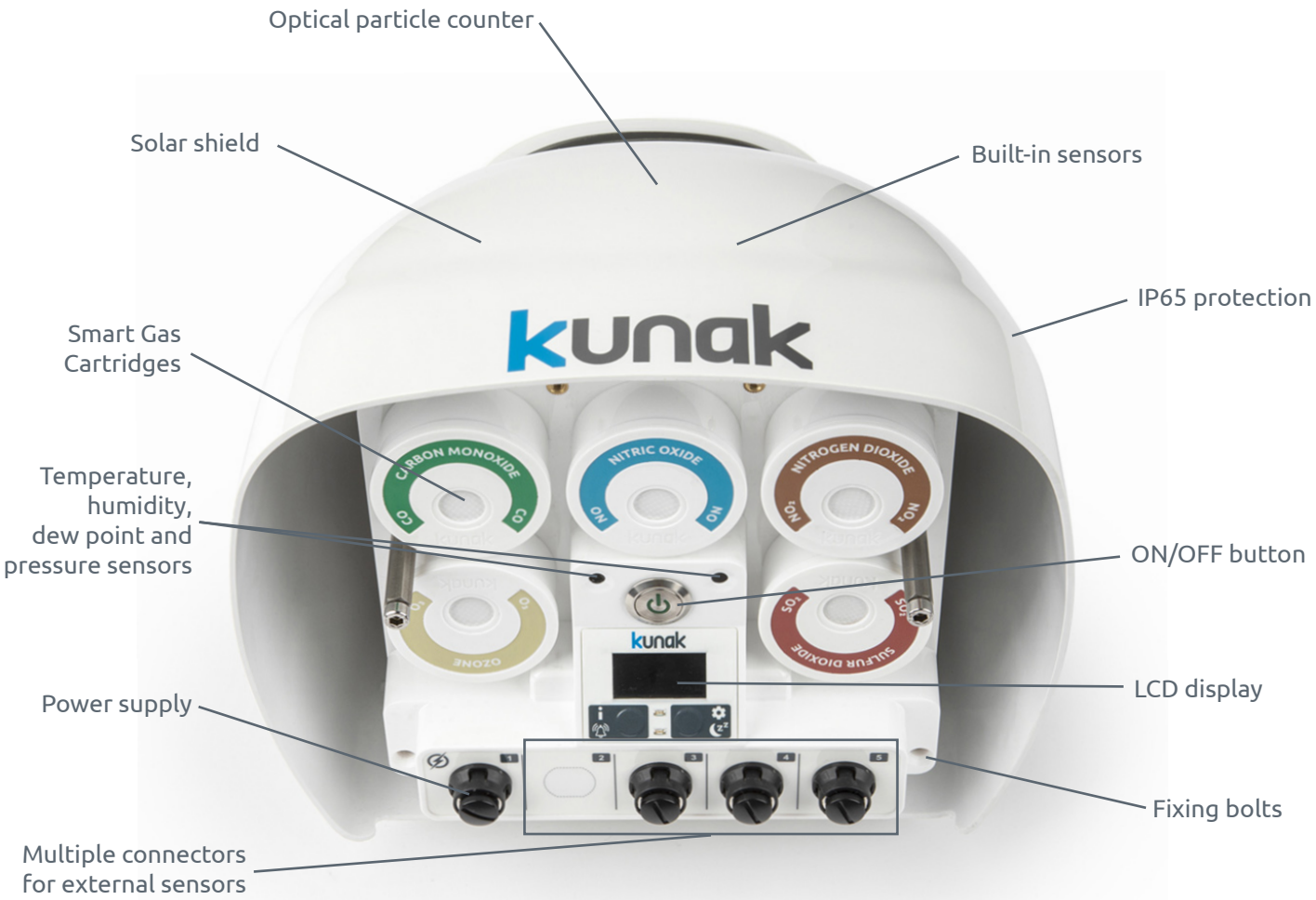
Autonomous operation with its built-in battery and solar panel.

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 °C to 60 °C
Operating RH	0 to 99 %RH
IP rating	IP65
Battery	Lithium 2.9Ah or 26Ah
External supply	7 – 12 Vdc. Charger or Solar panel
Autonomy	24/7 with solar panel or charger
Power consumption	0.08-1.2W (depending on con guration)
Communications	Multi-Band 2G/3G/4G (LTE-FDD/LTE-TDD/UMTS/HS-DPA/HSUPA/HSPA+/GSM/GPRS/EDGE) or Ethernet
GNSS	GPS, GLONASS, GALILEO and BEIDOU

Gas sensors	CO, CO2,NO, NO2, O3, SO2, H2S, NH3& VOCs
PM sensor	PM1, $PM2^5$ & $PM1^0$
Internal status	Temp./Battery/Charging voltage & current/Signal
Built-in sensors	Temp./Humidity/Atmospheric pressure/Dew point
Additional probes & actuators	#3: Noise meter & Digital output (Relay) #4: Modbus RS485 RTU & 4-20mA & Con gurable power supply output #5: Anemometer & Rain gauge inputs
Sampling freq.	3Hz gases, 1Hz 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 con guration and calibration
SIM	Embedded eSIM and SIM holder

Communications

GSM GPRS 2G 3G 4G Lte Ethernet

Gas, PM & Environmental sensor specs

Parameter	Type	Unit of measurement	Measurement range [1]	Resolution [2]	Optimal Temp. range [3]	Optimal RH range [4]	Operating life [5]
CO	Electrochemical	µg/m³, ppb	0-12,000 ppb[A] 0-500 ppm[B]	1 ppb[A] 0.1 ppm[B]	-30 to +50 °C	15 to 90 %RH	> 24 months
CO_2	Non-dispersive Infrared	mg/m³, ppm	0-5,000 ppm	1 ppm	0 to +50 °C	0 to 95 %RH	> 7 years
NO	Electrochemical	µg/m³, ppb	0-5,000 ppb	1 ppb	-30 to +40 °C	15 to 85 %RH	> 24 months
NO_2	Electrochemical	µg/m³, ppb	0-5,000 ppb	1 ppb	-30 to +40 °C	15 to 85 %RH	> 24 months[18]
O_3	Electrochemical	µg/m³, ppb	0-2,000 ppb	1 ppb	-30 to +40 °C	15 to 85 %RH	> 24 months[18]
H_2S	Electrochemical	µg/m³, ppb	0-2,000 ppb	1 ppb	-30 to +50 °C	15 to 90 %RH	> 24 months
SO_2	Electrochemical	µg/m³, ppb	0-10,000 ppb	1 ppb	-30 to +40 °C	15 to 90 %RH	> 24 months
NH_3	Electrochemical	mg/m³, ppm	0 - 50 ppm	0.1 ppm	-10 to +50 °C	15 to 90 %RH	> 24 months
VOCs	Photoionization	mg/m³, ppm	0-40 ppm	0.01 ppm	-20 to +60 °C	0 to 99 %RH	10,000 hours
PM_1	Optical particle counter	µg/m³	0 - 1,000 µg/m³	1 µg/m³	-10 to +50 °C	0 to 95 %RH	> 24 months
$PM_{2.5}$	Optical particle counter	µg/m³	0 - 1,500 µg/m³	1 µg/m³	-10 to +50 °C	0 to 95 %RH	> 24 months
PM_{10}	Optical particle counter	µg/m³	0 - 2,000 µg/m³	1 µg/m³	-10 to +50 °C	0 to 95 %RH	> 24 months
Noise L_{Aeq}	Omnidirectional mic	dB(A)	35 - 130 dB(A)	0.1 dB(A)	-10 to +50 °C	1 to 95 %RH	> 24 months
Temperature	Solid state	°C	-40 - +150 °C	0.01 °C	-40 to +150°C	0 to 100 %RH	> 5 years
Relative humidity	Solid state	%RH	0 - 100 %RH	0.04 %	-40 to +150°C	0 to 100 %RH	> 5 years
Pressure	Solid state	hPa	300 - 1,100 hPa	0.18 Pa	-90 to +85°C	0 to 100 %RH	> 5 years

Parameter	Guarantee range [6]	Limit of detection [11]	Performance limit level [14]	Typical Accuracy [15]	Typical 90% confidence interval [16]	R^2 typical precision [17]
CO	1,000 ppm	10 ppb	< 50 ppb	± 0.08 ppm	0.125 ppm	> 0.85
CO_2	-	<20 ppm	-	± 30 ppm	-	-
NO	20 ppm	2 ppb	< 5 ppb	± 4 ppb	10 ppb	> 0.9
NO_2	20 ppm	2 ppb	< 10 ppb	± 5 ppb	10 ppb	> 0.85
O_3	20 ppm	2 ppb	< 10 ppb	± 8 ppb	14 ppb	> 0.9
H_2S	100 ppm	4 ppb	< 10 ppb	± 10 ppb	20 ppb	> 0.75
SO_2	100 ppm	5 ppb	< 20 ppb	± 15 ppb	25 ppb	> 0.7
NH_3	100 ppm	< 0.1 ppm	< 0.5 ppm	± 0.3 ppm	-	-
VOCs	20 ppm	0.01 ppm	-	-	-	-
PM_1	-	-	-	± 6 µg/m³	12 µg/m³	> 0.9
$PM_{2.5}$	-	-	-	± 10 µg/m³	18 µg/m³	> 0.8
PM_{10}	-	-	-	± 18 µg/m³	30 µg/m³	> 0.7
Noise L_{Aeq}		-	**Frequency range** 20 - 12,500 Hz	± 1 dB(A)	3 dB(A)	> 0.9
Temperature	-	-	-	± 0.9 °C	1.5 °C	> 0.95
Relative humidity	-	-	-	± 3 %RH	6 %RH	> 0.95
Pressure	-	-	-	± 2 hPa	3 hPa	> 0.95

(1) **Measurement range:** Concentration range measured by the sensor.
(2) **Resolution:** Smallest unit of measurement that can be indicated by the sensor.
(3) **Temperature range:** Interval of temperatures that the sensor could be exposed to.
(4) **RH range:** Interval of humidities that the sensor could be exposed to.
(5) **Operating life:** Lifetime of the sensor in normal conditions. Long exposures to humidity above 85% can damp the sensor and affect the measurements.
(6) **Guarantee range:** Limit covered by the guarantee.
(11) **LOD (Limit of detection):** Measured quantity value giving the probability of falsely claiming the absence or presence of a component.
(14) **Performance limit level:** Readings below this level can have lower performance than specified. Measured against reference instrument.
(15) **Typical accuracy:** Is obtained as the mean absolute error (MAE) between KUNAK AIR hourly measurements and reference instruments in 1 to 8 months field test between -10 to +30ºC in different countries.
(16) **Typical 90% confidence interval:** 90% of the hourly measurements obtained in 1 to 8 months field tests between -10 to +30ºC in different countries are below this absolute error comparing to reference instruments.
(17) **Typical precision R2** The average R^2 between KUNAKAIR hourly measurements and reference instruments in 1 to 8 months field tests between -10 to +30ºC in different countries.
(18) **NO2- O3** Operating life if applying correct calibrations with a small decrease in performance. 12 month recommended operating life for best performance.
(19) **NDIR:** Non-dispersive Infrared

Large data is the goal, but accurate data is the key

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