



360° ENVIRONMENTAL MONITORING SOLUTION

SOLUTION OVERVIEW :



Polludrone Pro Solar



Polludrone Smart for Smart-City

Polludrone is a next-generation environmental monitoring solution which works on IoT technology. Polludrone is fully solar powered and its retrofit design allows it to be easily integrated into the existing infrastructure. Polludrone measures various environmental parameters like Particulate, Toxic Gases, Odours, Radiation, Traffic, Noise, Light, Weather etc. on continuous basis and send the data online to the central server system using wireless / wired network protocols like GSM, GPRS, 3G, WiFi, LORA, RS485, Ethernet etc.

The data from Polludrone is supported by Oizom Terminal, a cloud analytics software. Oizom Terminal offers Real-time Air-quality Data Modelling, Air-quality Data Analytics, Automated Reports, Smart Notifications, Real-time Pollution Mapping, Air-quality Predictions, Pollution Source Finding etc.

Polludrone is also highly compatible with different types of external IT infrastructure like cloud softwares, web-applications, mobile-app, 3rd party applications, digital display screens, existing LED displays, external server system etc. for data acquisition, visualization and publication.

SOLUTION FEATURES :

- A. **Patent Pending Technology** : Solution works on innovative measurement methodology for accurate data.
- B. **360° Solution** : Solution is capable to monitor all the possible environmental parameter using single device.

- C. **Downward Monitoring** : Solution sense uplifting pollutants from downward suction based sampling.
- D. **Solar Powered(Optional)** : Solution comes with an integrated solar panel as an independent power source
- E. **Retrofit Concept** : No infrastructure changes required to implement the solution.
- F. **Compact Design** : Solution is design is compact for minimum space occupancy and ease of mobility.
- G. **No Space Occupancy** : The solution monitors environmental parameters from 12-15 Feet height without occupying any floor space.
- H. **Real Time Data Transfer** : The solution provides real time-data on continuous basis (Every 5 Mins) through various connectivity.
- I. **Wide Connectivity** : The solution supports wide range of connectivity options to choose from GSM / GPRS / WiFi / LORA / USB / Ethernet as per application.
- J. **Weatherproof** : The solution has resistance from weather conditions like temperature, humidity, rain, wind, snow etc. with its IP65 Grade Enclosure.
- K. **Tamper Proof / Theft Resistant** : The solution comes with an optional security system to avoid tampering and theft.
- L. **Long Battery Backup** : The battery capacity is sufficient to run the solution for upto 72 hours without charging.
- M. **Identity & Configuration** : Each instrument carries its own identity with geographical tagging with wireless custom configurable sensors.
- N. **Auto Update** : The solution is automatically upgradable from central server without any onsite visit.

TECHNICAL SPECIFICATIONS:

CATEGORY	FEATURE	SPECIFICATIONS
MECHANICAL	Dimensions	250mm X 400mm X 150mm (Smart)
	Weight	3.5 Kg (Smart)
	Weather Resistance	IP-65
	Enclosure Material	Aluminum, Mild-steel (With Powder Coating)
	Clamping	Pole / Wall (South Facing in case of Solar Powered)
MEASUREMENT	Response Time	30 - 600 Second (Configurable)
	Sample Rate	120 ml / min.

	Measurement Height	4m - 6m from ground level
	Certification	CE,FCC NABL Accredited Laboratory Certificate (Optional)
CONNECTIVITY	WiFi	802.11 b/g/n
	GSM	850/900/1800/1900 MHz
	Ethernet	IEEE 802.3 af
	Communication Protocol	HTTP / MQTT / RS485
	Certification	FCC, IC, PTCRB Certified Communication Module
PROCESS	Controller	ARM Cortex M3 - 120MHz
	Internal Storage	128 MB (1 Week internal data backup)
CONFIGURATION	Firmware Update	Automatic
	Geo-tagging	Configurable from Central Server
ENERGY	Solar Panel (Optional)	15 Watt (Polycrystalline)
	Battery(If Required)	12V - 7Ah
	Power Assist	6V - 24V DC
	Power Consumption	1 Watt 3 Watt (During Data Transfer)
	Backup(As Required)	36 Hours (Tested)
SECURITY (Optional)	Theft Alarm	120 dB Siren
	Alarm Trigger	5 Degree Tilt

PARAMETERS :

ID	PARAMETERS	WORKING PRINCIPLE	RANGE	MIN. DETECTION	RESOLUTION
PARTICULATE MATTER : Environmental Monitoring, Smart-City Infrastructure, Pollution Monitoring, Vehicular Emission Monitoring, Industrial Emission Monitoring, Health Hazard Monitoring, Respiratory Impact Monitoring.					
PM1	Ultra Fine Particulate Matters 1u	Laser Scattering	Dynamic upto 1000 ug/m3	0.3 µg/m3	0.01 ug/m3
PM2.5	Suspended Particulate Matters 2.5u				
PM10	Particulate Matter 10u				
ENVIRONMENTAL GASES : Environmental Monitoring, Smart-City Infrastructure, Pollution Monitoring, Environmental Impact Monitoring					
CO2	Carbon Dioxide	Nondispersive Infrared Detector (NDIR)	Dynamic upto 5000 PPM	20 PPM +	1 PPM
O2	Oxygen Saturation	Electrochemical Sensing	Dynamic Upto 10%	0.1% +	0.1%
GASEOUS POLLUTANTS : Environmental Monitoring, Smart-City Infrastructure, Pollution Monitoring, Vehicular Emission Monitoring, Industrial Emission Monitoring, Human Health Hazard Monitoring					
NOx	Nitric Oxide	Electrochemical Sensing	Dynamic upto 50 PPM	0.1 PPM +	0.02 PPM
	Nitrogen Dioxide		Dynamic upto 500 PPM	0.1 PPM +	0.02 PPM
CO	Carbon Monoxide		Dynamic upto 1000 PPM	0.1 PPM +	0.02 PPM
O3	Ozone		Dynamic upto 200 PPM	0.02 PPM +	0.02 PPM
ODOUR : Environmental Monitoring, Odour Monitoring, Landfill Site Monitoring, Waste Water Treatment Monitoring, Human Health Hazard Monitoring					
SO2	Sulphur Dioxide	Electrochemical Sensing	Dynamic upto 2000 PPM	0.02 PPM +	0.02 PPM
H2S	Hydrogen Sulfide		Dynamic upto 2000 PPM	0.02 PPM +	0.02 PPM
NH3	Ammonia		Dynamic upto 100 PPM	0.02 PPM +	0.5 PPM

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POLLUDRONE PRO / SMART
 PRODUCT TECHNICAL SPECIFICATIONS

4CH3S H	Methyl Mercaptan		Dynamic upto 10 PPM	0.01 PPM +	0.01 PPM
HYDROCARBONS & VOC : Environmental Monitoring, Pollution Monitoring, Landfill Site Monitoring, Greenhouse Effect Monitoring, Global Warming Assessment, Environmental Impact Monitoring					
TVOC	Total Volatile Organic Compounds	Advanced Solid State Sensing (Amperometric) Photoionization Detection (PID)	Dynamic upto 20 PPM	0.01 PPM +	5 PPB
CH4	Methane	Nondispersive Infrared Detector (NDIR)	Dynamic upto 5000 PPM	10 PPM +	50 PPM
CH2O	Formaldehyde	Electrochemical Sensing	Dynamic upto 5 PPM	0.02 PPM +	0.01 PPM
AMBIENT NOISE : Environmental Monitoring, Smart-City Infrastructure, Vehicular Noise Monitoring, Industrial Noise Monitoring, Human Health Hazard Monitoring					
N	Ambient Noise	Microphone Sensing	30 - 120 dB	dB	
AMBIENT LIGHT : Environmental Monitoring, Smart-City Infrastructure, Human Health Hazard Monitoring					
Li	Light Intensity	Photovoltaic Operation	0 - 65,000 Lux	1 Lux	1 Lux
UV	Ultra Violet Light	Photovoltaic Operation	0.1 - 100,000 uW/ cm2	0.1 uW/cm2	0.1 uW/ cm2 (UV Index)
IR	Infrared Light	Photovoltaic Operation	0.1 - 40,000 Lux	0.1	0.1 Lux
Lv	Visible Light	Photovoltaic Operation	0 - 5000 Lux	0.1	0.1 Lux
PUBLIC HAZARD : Environmental Monitoring, Smart-City Infrastructure, Industrial Impact Monitoring, Human Health Hazard Monitoring					
MF	Magnetic Field	Magnetoresistive Sensing	Magnetic Field Range (+/-8 Oe)	1° - 2°	1°
Vib	Physical Shock/Vibration	Capacitive MEMS	1.56 Hz to 800 Hz	±2.64	-

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Rad	Radiation	Photovoltaic Operation	0.01 ~ 200	0.01	0.01(μSv/h)
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POLLUDRONE PRO / SMART
 PRODUCT TECHNICAL SPECIFICATIONS

EMF	Cellular Radio Exposure	RF Meter and Gauss Meter	14 mV/m to 26.2 V/m (RF) 0.1 mG to 600 mG (Gauss)	mV/m (RF) mG (Gauss)	
TRAFFIC DENSITY : Smart-City Infrastructure, Vehicular Emission Monitoring					
Td	Traffic Density	Doppler Radar Sensor	Traffic Count : Incoming + Outgoing Vehicles Vehicle Speed Range Vehicle Size Segment Real Time Traffic Density		
WEATHER : Environmental Monitoring, Smart-City Infrastructure					
Temp	Temperature	Capacitive Sensing	-40 - +85 °C	-10°C	0.1°C
Hum	Humidity	Capacitive Sensing	0 - 100 % RH	0.1% +	0.1 % RH
BMP	Barometric Pressure	Piezoresistive Sensing	0.3 - 1.1Pa	0.03 hPa	Bar hPa
Rm	Rainfall Monitoring	Oscillation Sensing	N.A.	1mm +	1mm
WL	Water Level	Ultrasonic Sensing	Upto 20 Feet	1 + ft	1 ft
W	Wind Speed	Ultrasonic Sensing / Cup Anemometers	0-60 m/s	1cm +	1cm
Wd	Wind Direction	Ultrasonic Sensing / Vane Anemometers	0 - 360 degree	-	1 degree
Vis	Visibility / Fog Monitoring	Optical Sensing	0-100%	1%	% Visibility Km Visibility
Rt	Road Surface Temperature	IR Sensing	-50 - +500 °C	-	°C

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