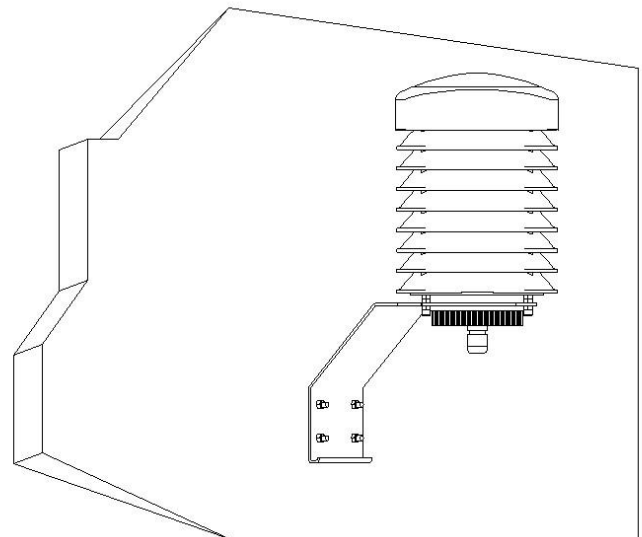
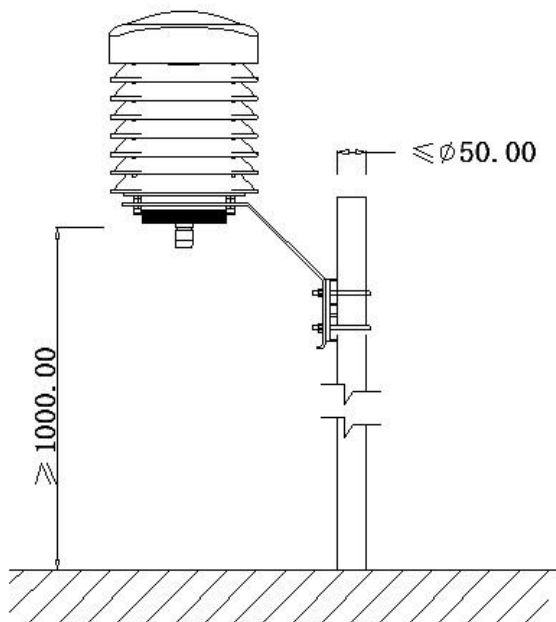
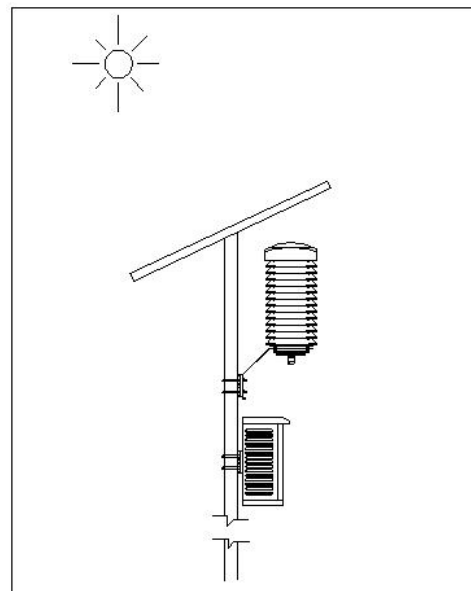
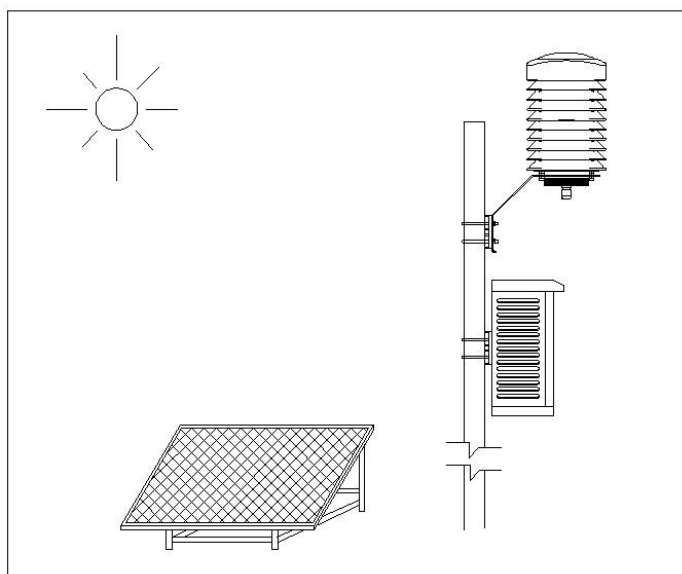


## TF9 Outdoor Air Quality Monitor

- Design for real time monitoring outdoor air quality
- Rain & snow-proof, high temperature resistant design with IP53 protection class
- Up to eight parameters available for monitoring air quality in outdoor space, tunnel, underground and semi-underground
- Built-in high-precision sensing module in commercial-level for accurate measurement with high cost performance ratio.
- Optional communication interface: RS485, WiFi +extra RS485 , Ethernet + extra RS485, WiFi/Ethernet + extra RS485, or customized 4G.
- 12~24VDC powered with a 100~240VAC/ 1A power adaptor;
- Optional solar powered with Lithium-Polymer rechargeable battery, support the monitor working for 72 hours on rainy and cloudy days without sunlight.
- It can be installed on the outside wall of buildings, roof of the buildings, on the ground, on the telegraph pole etc.





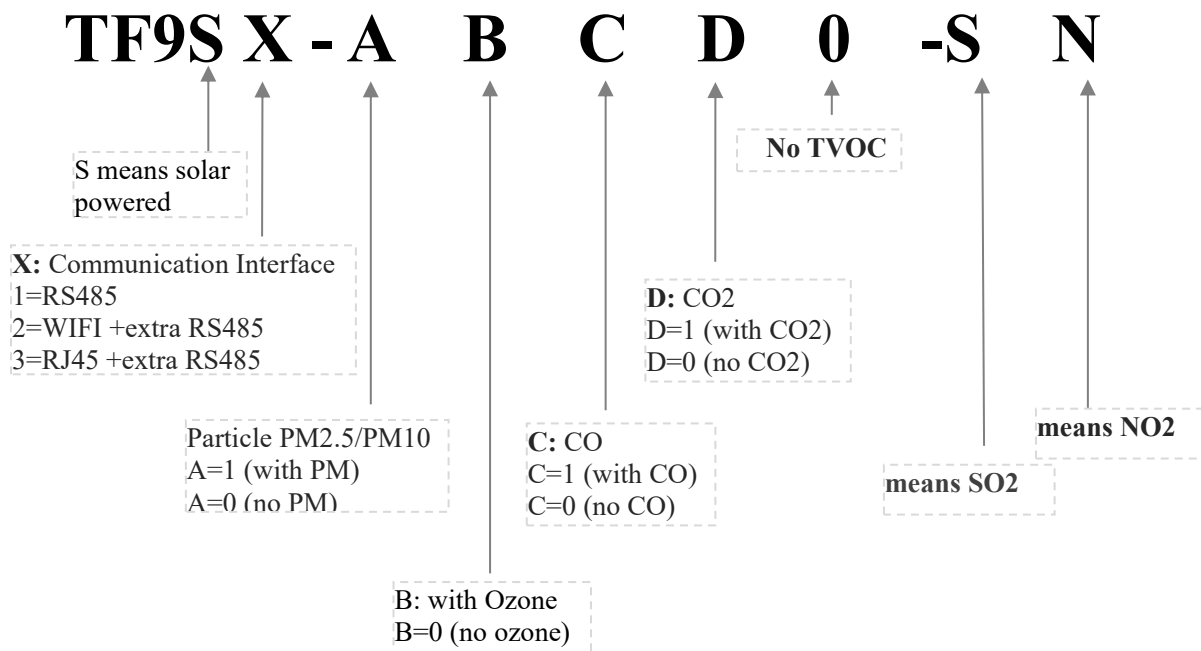
## Specifications

General Parameters	
Power supply	12-24VDC (with a 100~240VAC/ 1A power adaptor)
Solar powered option (solar panel)	Monocrystalline silicon energy solar panel (with 3.2mm fully tempered glass) 120W solar panel, 18V and 6.6A
Solar powered option (Lithium battery)	TF9 has a battery box, which can be put 18pcs18650 lithium batteries. Each 18650 typical capacity is from 3400mAh~2600mAh. Recommend using the batteries with overcharging and discharging protection.
Communication interface options	A. RS485,Modbus RTU/BACnet MS/TP; B. WiFi@2.4 GHz 802.11b/g/n C. RJ45 Ethernet D. 4G in area coverage: B3 (1800 MHz); B7 (2600 MHz); B20 (800 MHz);
Extra RS485 for models of WiFi/RJ45/4G	9600bps(default), 15KV Antistatic protection
Data upload interval cycle	1 minute~24 hours presetting Default: 1 minute
Output data	Moving average / 1 minutes Moving average / 1 hour Moving average / 24 hours
Working condition	-20℃~70℃/ 0~99%RH
Storage condition	0℃~50℃/ 10~60%RH
Maximum dimensions of the monitor (including fixed bracket)	Width: 190mm, Total width with bracket: 272mm Height:252~441mm, Total height with bracket: 362~574 mm Depending on the monitored sensing parameters and communication interfaces

Net weight	2.35kg~3.05Kg Depending on the monitored sensing parameters and communication interfaces
Packing size/Weight	53cm X 34cm X 25cm, 3.9Kg
Shell Material	PC material
Protection grade	It is equipped with sensor inlet air filter, rain and snow-proof, temperature resistance, UV resistance aging, anti-solar radiation cover shell. IP53 protection class.
<b>Particle (PM2.5/ PM10 ) Data</b>	
Sensor	Laser particle sensor, light scattering method
Measurement range	0-1000ug/m3
Output resolution	0.1ug/m3
PM2.5 Accuracy	±5ug/m3+10% of reading (0-500ug/m3, 0%-70%RH, @ 0-40℃)
PM10 Accuracy	±10ug/m3+15% of reading (0-500ug/m3, 0%-70%RH, @ 0-40℃)
<b>Temperature and Humidity Data</b>	
Inductive component	Band gap material temperature sensor, Capacitive humidity sensor
Temperature measuring range	-20℃-80℃
Relative humidity measuring range	0-99%RH
Accuracy	±0.3℃(-20~70℃), ±3%RH (0%-70%RH)
Output resolution	Temperature: 0.01℃ Humidity: 0.01%RH
<b>CO Data</b>	
Sensor	Electrochemical CO Sensor
Measurement range	0-200mg/m3
Output resolution	0.001mg/m3
Accuracy	±1mg/m3+5% of reading (0%-70%RH, @ 0-40℃)
<b>Ozone Data</b>	
Sensor	Electrochemical Ozone sensor
Measuring Range	0-2000ug/m3
Output Resolution	1ug/m3
Accuracy	±15ug/m3+15% of reading (0-70%RH, @ 0-40℃)
<b>NO2 Data</b>	
Sensor	Electrochemical Ozone sensor
Measuring Range	0-4000ug/m3
Output Resolution	1ug/m3

Accuracy	±15ug/m3+15% of reading (0-70%RH, @ 0-40℃)
<b>SO2 Data</b>	
Sensor	Electrochemical Ozone sensor
Measuring Range	0-4000ug/m3
Output Resolution	1ug/m3
Accuracy	±15ug/m3+15% of reading (0-70%RH, @ 0-40℃)
<b>TVOC Data</b>	
Sensor	Metal oxide sensor
Measuring Range	0.01-4.00mg/m3
Output resolution	0.001mg/m3
Accuracy	±0.05mg/m3+10% of reading (0-2mg/m3, 10%-80%RH,@0-40℃)
<b>Atmospheric Pressure</b>	
Sensor	MEMS Semi-conductor sensor
Measuring range	0~103425Pa
Output resolution	8 Pa
accuracy	<±48Pa

## Models Guide



## Models examples

Model	PM2.5 PM10	Ozone	CO	CO2	NO2	SO2	Communication
TF91-10110-MB TF91-10110-BN	•		•	•			RS485, Modbus RTU or RS485, BACnet MS/TP
TF93-11000	•	•					RJ45, MQTT Protocol
TF94-11100-SN	•	•	•		•	•	4G, MQTT Protocol

## Protocol Support

Communication protocol support

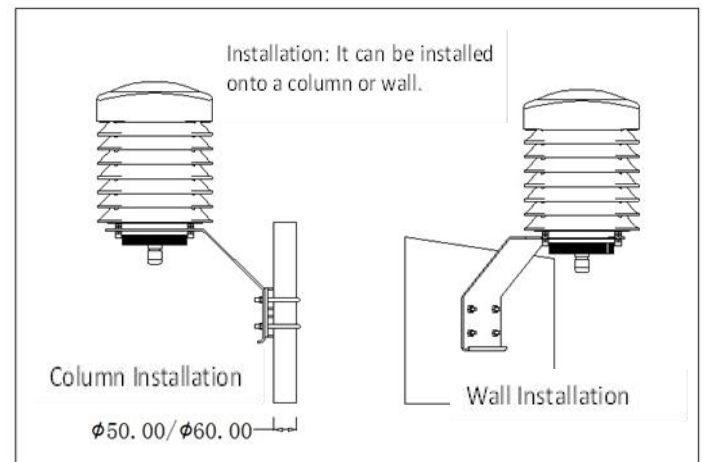
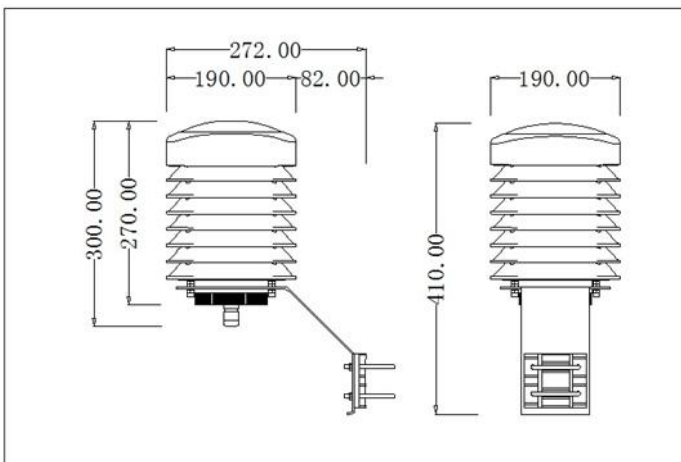
1. Modbus RTU protocol for RS485
2. BACnet MS/TP for RS485
3. MQTT protocol for WiFi, Ethernet and 4G
4. API for clients servers

## Examples of Dimension of the Monitor

- WIFI interface, RS485 interface for monitoring PM2.5/PM10, TVOC, CO, T&RH

Overall size: width 190.00mm, height 434.00mm

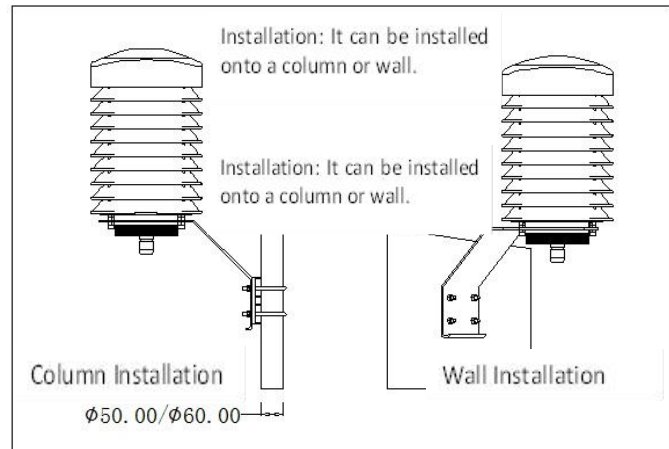
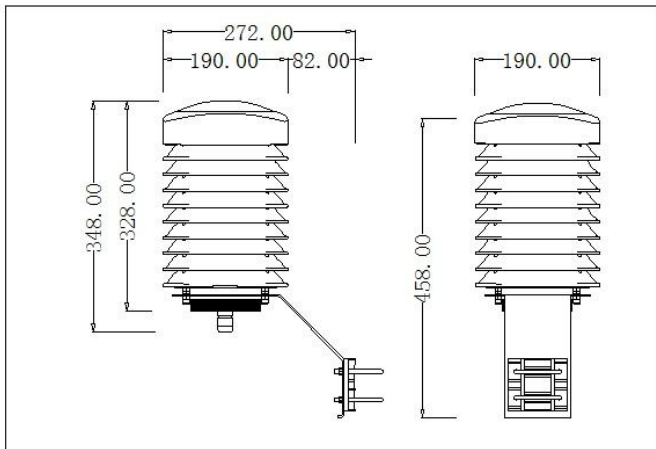
Net weight: 2.65Kg



- RJ45 interface PM2.5/PM10, TVOC, CO, T&RH

Overall Size: width 190.00mm, height: 458.00mm

Net weight: 2.8Kg



- 4G interface for monitoring CO, NO<sub>2</sub>, SO<sub>2</sub>, Ozone, T&RH

Overall size: width 190.00mm, height 574.00mm      Net weight: 3.05Kg

