

# TF9 Outdoor Air Quality Monitor

- Design for real time monitoring outdoor air quality
- Built-in high-precision sensing module in commercial-grade for accurate measurement with high cost performance ratio.
- Up to eight parameters available for monitoring air quality in outdoor space, tunnel, underground and semi-underground
- Rain & snow-proof, high temperature resistant design with IP53 protection class
- Provide a variety of communication interface options, and connect monitoring data to the data platforms via Cloud servers. You may record, read and analyse outdoor air quality, also compare air quality of outdoor and indoor with IAQ monitors together to develop air quality improvement or energy saving solutions.



## *Features*

Specially designed for atmospheric ambient air quality monitoring, multiple measurement parameters could be selected.

Unique self-property particle sensing module adopts the structural design of fully enclosed aluminum casting to ensure structural stability casting to ensure structural stability, air-tightness and shielding, and greatly improve the anti-interference ability.

Specially designed to protect against rain and snow, high and low temperature resistance, UV-resistant and solar radiation hoods. It has adaptability for wide environment.

With temperature and humidity compensation function, it reduces the influence of environmental temperature and humidity changes on various measurement coefficients.

Real-time detecting PM2.5/PM10 particles, ambient temperature and humidity, carbon monoxide, carbon dioxide, TVOC and ozone.

Provides RS485, WIFI, RJ45(Ethernet) communication interfaces could be selected. It is equipped with an RS485 extension communication interface specially.

Support multiple data platforms, provide multiple communication protocols, realize the storage, comparison, analysis of the data from multiple observation points in local areas to determine the source of pollution, provide data support for the treatment and improvement of atmospheric air pollution sources.

Applied conjunction with MSD indoor air quality monitor and PMD in-duct air quality detector, can be used as the comparison data of indoor and outdoor air quality in the same area, and solves the large standard deviation of the comparison due to the atmospheric environment monitoring station away from the actual environment. It provides a verification basis of air quality improvement and energy saving in buildings.

Used for monitoring of atmospheric environment, tunnels, semi-basement and semi-enclosed spaces installed on a column or outdoor wall.

## Applications

1. Use alone to obtain atmospheric environmental data in the installed area.
2. Used in conjunction with IAQ monitor MSD and duct air quality detector PMD. Data comparison, system improvement plan and verification of building fresh air system and air filtration purification system.

MSD series (Indoor environment)



TF9 series (outdoor series)



3. Local area supervision, multi-point real-time data collection.

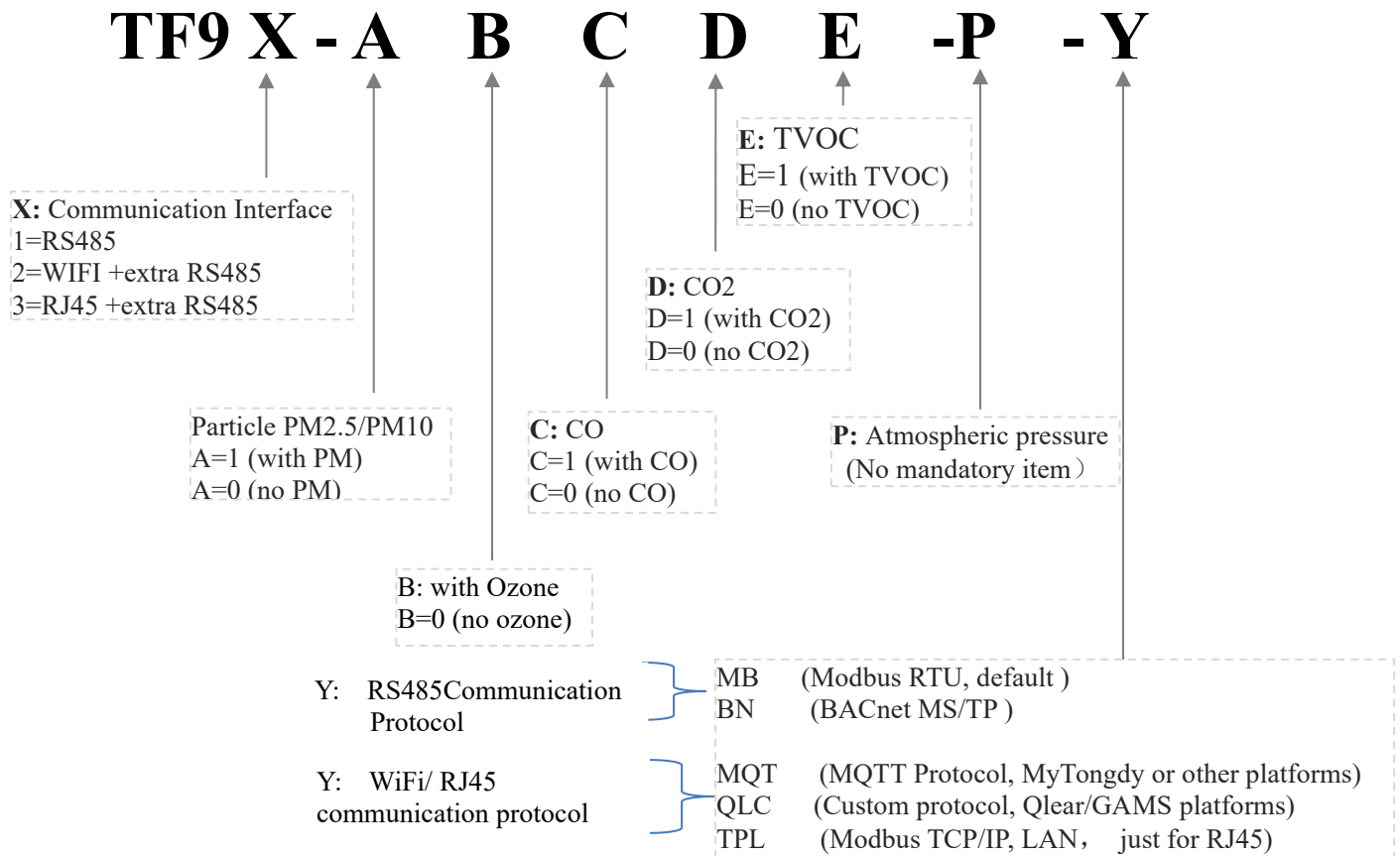
Key regulatory industry

Enterprises with pollutants

Temporary construction site



## Models Guide



## Models examples

Model	PM2.5 PM10	Ozone	CO	CO2	TVOC	Communication
TF93-11001-MQT	•	•			•	RJ45, MQTT Protocol
TF91-10110-MB TF91-10110-BN	•		•	•		RS485, Modbus RTU RS485, BACnet MS/TP
TF93-10100-QLC	•		•			RJ45, with protocol of Qlear platform

## Technical Parameter

General Parameter	
Power supply	12-24VDC (connect with a 100~240VAC/ 1A power adaptor)
Communication interface	Choose one from the following
RS485	9600bps(default), 15KV Antistatic protection
RJ45	Ethernet TCP
WiFi	WiFi@2.4 GHz 802.11b/g/n
Data upload interval cycle	Average/60 second
Output data	Moving average / 60 seconds, Moving average / 1 hour Moving average / 24 hours
Working condition	-20°C~60°C/ 0~99%RH, no condensation
Storage condition	0°C~50°C/ 10~60%RH
Overall dimension	Diameter 190mm , Height 434~482 mm (Please refer to overall size and installation drawings)
Mounting accessory size (bracket)	4.0mm Metal bracket plate; L228mm x W152mm x H160mm
Maximum dimensions (including fixed bracket)	Width: 190mm , Total Height: 362~482 mm (Please Refer to overall size and installation drawings), Total width(bracket included): 272mm
Net weight	2.35kg~2.92Kg(Please refer to overall size and installation drawings )
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 rating.
Particle (PM2.5/ PM10 ) Data	
Sensor	Laser particle sensor, light scattering method
Measurement range	PM2.5: 0-1000ug/m3 , PM10: 0-2000ug/m3
Pollution index grade	PM2.5/ PM10: 1-6 grade
AQI Air quality sub-index output value	PM2.5/ PM10: 0-500
Output resolution	0.1ug/m3
Zero point stability	<2.5ug/m3
PM2.5 Accuracy	<±2ug/m3+10% of reading (0-500ug/m3, 10%-80%RH, @ 0-40°C)

PM10 Accuracy	$\leq \pm 2 \mu\text{g}/\text{m}^3 + 15\%$ of reading (0-500 $\mu\text{g}/\text{m}^3$ , 10%-80%RH, @ 0-40°C)
<b>Temperature and Humidity Data</b>	
Inductive component	Band gap material temperature sensor, Capacitive humidity sensor
Temperature measuring range	-20°C–60°C
Relative humidity measuring range	0-99%RH
Accuracy	$\pm 0.5^\circ\text{C}$ (5-35°C), $\pm 4\%$ RH (10%-80%RH)
Output resolution	Temperature : 0.01°C      Humidity : 0.01%RH
<b>CO Data</b>	
Sensor	Electrochemical CO Sensor
Measurement range	0-200mg/m <sup>3</sup>
Output resolution	0.001mg/m <sup>3</sup>
Accuracy	$\pm 1 \text{mg}/\text{m}^3 + 5\%$ of reading (10%-80%RH, @ 0-40°C)
<b>Ozone Data</b>	
Sensor	Electrochemical Ozone sensor
Measuring Range	0-2000 $\mu\text{g}/\text{m}^3$ / 0-1000ppb
Output Resolution	1 $\mu\text{g}/\text{m}^3$
Accuracy	$\pm 15 \mu\text{g}/\text{m}^3 + 10\%$ of reading (10%-80%RH, @ 0-40°C)
<b>CO2 Data</b>	
Sensor	Non-Dispersive Infrared Detector (NDIR)
Measuring Range	350-2000ppm
Pollution index output grade	1-6 level
Output resolution	1ppm
Accuracy	$\pm 50 \text{ppm} + 3\%$ of reading or $\pm 75 \text{ppm}$ (Whichever is bigger)
<b>TVOC Data</b>	
Sensor	Metal oxide sensor
Measuring Range	0.01-4.00mg/m <sup>3</sup>
Output resolution	0.001mg/m <sup>3</sup>
Accuracy	$\pm 0.05 \text{mg}/\text{m}^3 + 10\%$ of reading (0-2mg/m <sup>3</sup> , 10%-80%RH,@0-40°C)
<b>Atmospheric Pressure</b>	
Sensor	MEMS Semi-conductor sensor
Measuring range	0~103425Pa
Output resolution	8 Pa
accuracy	$\leq \pm 48 \text{Pa}$

## Protocol Support

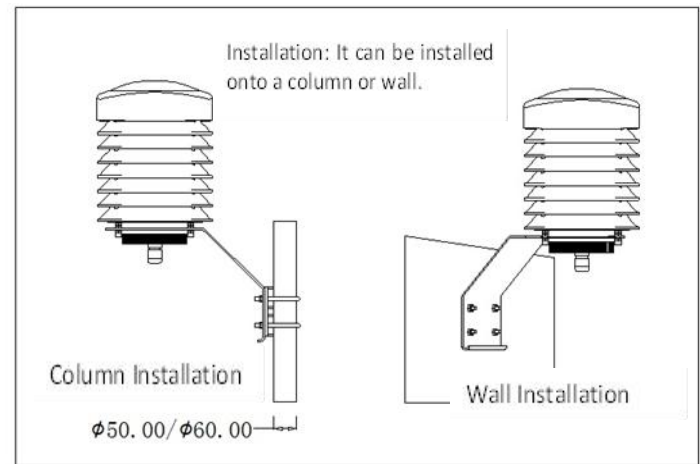
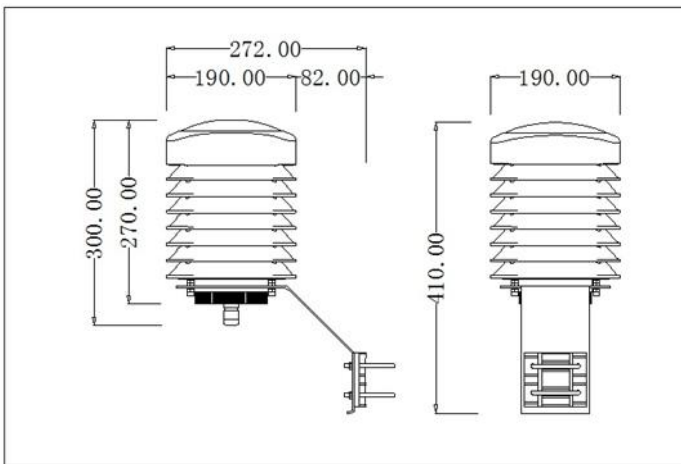
Communication protocol support

1. Modbus RTU protocol for RS485
2. BACnet MS/TP for RS485
3. MQTT protocol (support MyTongdy platform software; other standard MQTT protocol platform for non-encrypted authentication)
4. Customized agreement (supports QLEAR platform software; supports GAMS data platform)
5. Modbus TCP Lan for RJ45 Ethernet

## Dimension and installation

- WIFI interface, RS485 interface with CO option  
Overall size: width 190.00mm, height 434.00mm

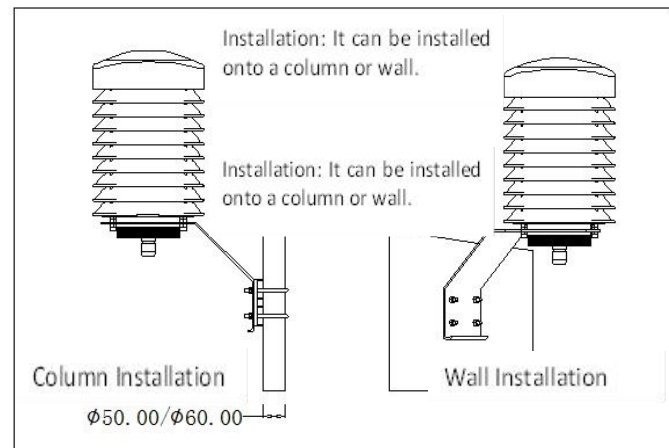
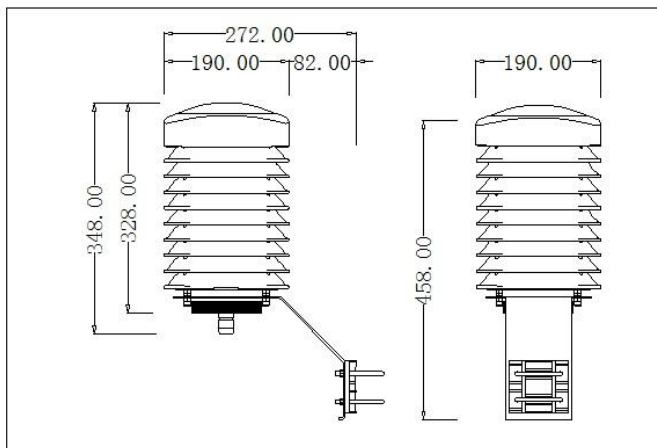
Net weight: 2.65Kg



- RJ45 interface

Overall Size: width 190.00mm, height: 458.00mm

Net weight: 2.8Kg

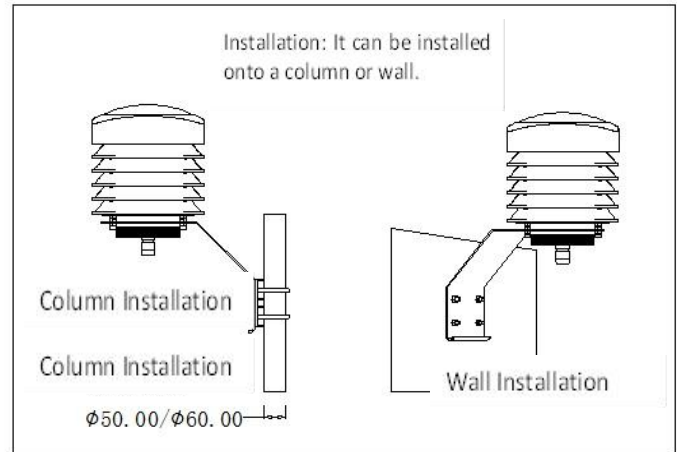
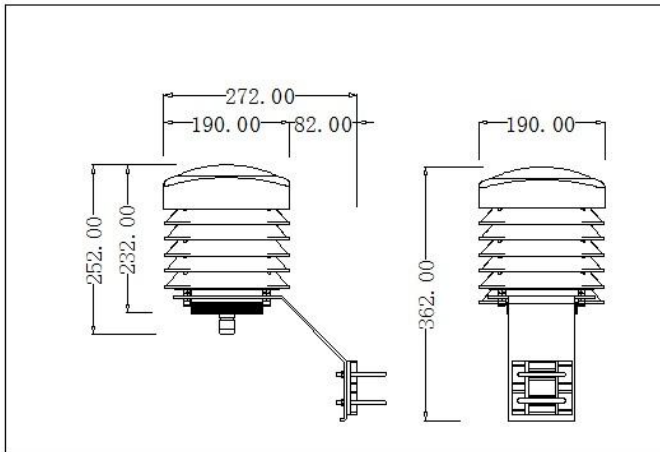




■ RS485 interface

Overall size: width 190.00mm, height 362.00mm

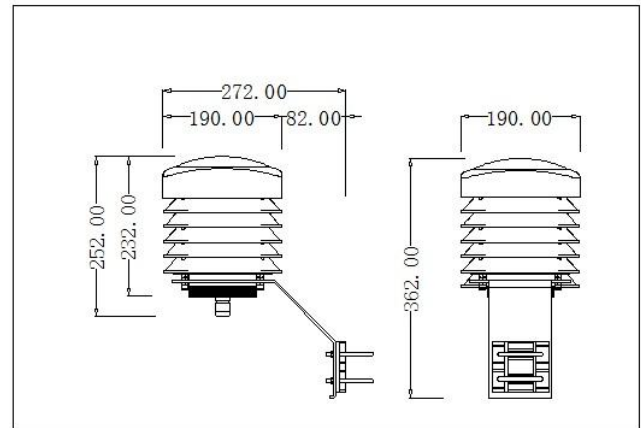
Net weight: 2.35Kg



### T&RH Weather Station

Model Description

- TFA9-TH-1810C  
(Outdoor T&RH monitoring, RS485 interface)
- TFA9-TH-1820C  
(Outdoor T&RH monitoring, WIFI interface)
- TFA9-TH-1830C  
(Outdoor T&RH monitoring, RJ45 interface)
- -P ( affix )  
(Atmospheric pressure)  
Overall Size: width 190.00mm, height: 362.00mm



Net weight: 2.3Kg

### Other Air Quality Monitors



- MSD Indoor Air Quality Monitor
  - Commercial grade, RESET certification, WELL approval, CE
  - Installation: Ceiling or wall mounting
  - Detecting: PM2.5/PM10, CO2, TVOC, HCHO, T&RH
  - Communication: RS-485, WiFi, RJ45 optional.
  - Power supply: 24VAC/VDC, or 100-240VAC.



- PMD In-duct Air Quality Detector
    - Commercial grade, RESET certified, CE-approval (soon)
- |                |                                  |
|----------------|----------------------------------|
| Installation:  | In-duct installation.            |
| Detecting:     | PM2.5/ PM10, CO2, TVOC, CO, T&RH |
| Communication: | RS-485, WiFi, RJ45 optional.     |
| Power supply:  | 24VAC/VDC, or 100-240VAC.        |