BR-K Series
Product Instruction

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1 | Product Information

BR-K series is an Internet enabled new generation intelligent fresh air controller. It can not only control air purification equipments, but also monitoring indoor air quality, PM2.5, PM10, TVOC, CO_2, temperature, humidity; control the air purification equipment base on the air quality data collected. The controller can transfer the air quality data to the server through RS485, Wi-Fi. User may use WeChat or webpage interface to monitor and control HVAC equipment, in order to establish project monitoring, HVAC equipment control and intelligent home automation.

2 | Products Features

2.1 Multiple measurement purposes: PM2.5 / PM10 / TVOC / CO / CO_2 / temp.& humi.

2.2 Power source 100-240VAC

2.3 Support multiple communication protocol: RS485, WIFI

2.4 Support MODBUS communication protocol and free-protocol

2.5 BR-K series product can perfectly combine with air purifying facility easily

2.6 Functions can be customized, such as monitoring SO_2 or O_2 level.

2.7 Support mobile app, principal computer, web remote monitoring

2.8 Provide outdoor air quality information when connected to the Internet.

3 | Applications

3.1 The product is applicable to various indoor environments.

Various fine particulate matter and chemical pollution can be monitored.

It can be used in the following areas for air quality monitoring and controlling of air purifying facility.

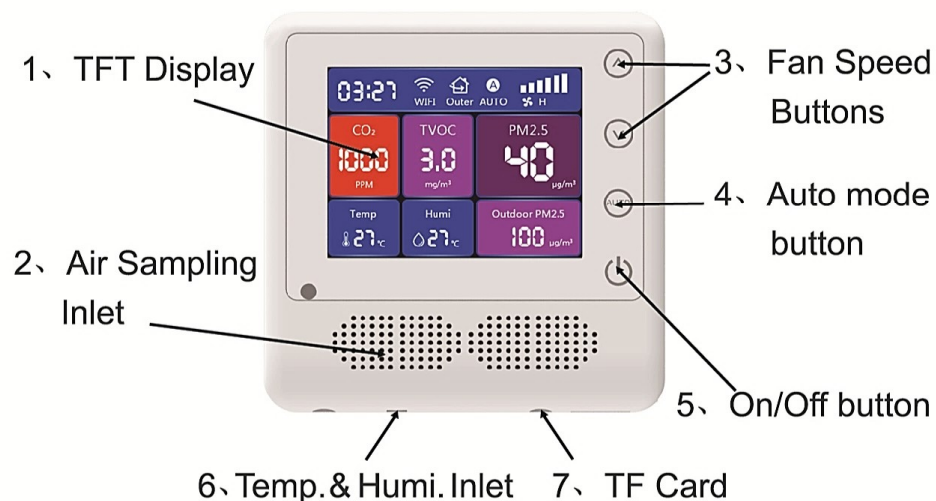Production Areas: factory / workshop / greenhouse / cleanroom

Living Areas: home / cottage / hotel / apartment

Public Areas: school / office / meeting room / museum / hospital / mall / bar / hotel / airport / railway station / theatre

3.2 BR-K controller can be linked with multiple equipments for automatic control, such as fresh air equipment, air purification system.

3.3 The product can be customized for the client to establish specific function according to fresh air & air purification equipment, such as fan RPM, valve switch; air quality control beyond Temp. & Humi, to achieve intelligent and networking of the equipment.
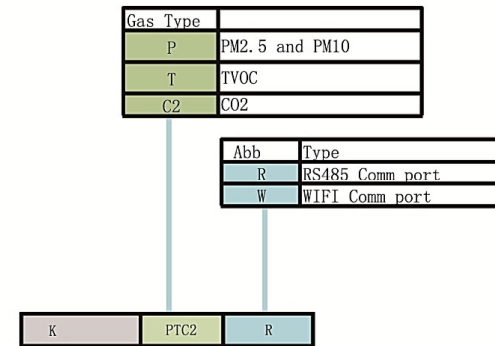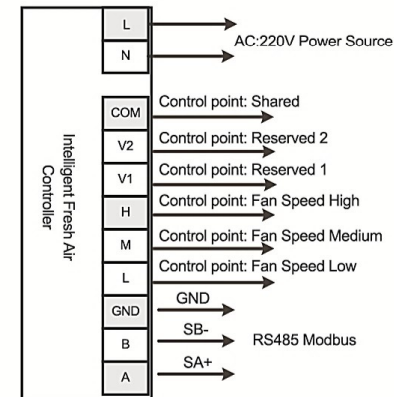
4 | Product Appearance

1、TFT Display

2、Air Sampling Inlet

3、Fan Speed Buttons

4、Auto mode button

5、On/Off button

6、Temp. & Humi. Inlet   7、TF Card

5 | Technical Specification

	Measuring method	light scattering measurement method
	Measuring Range	0-999 ug/m³
PM2.5/PM10	Measuring Efficiency	50%≥0.3um、98%≥0.5um
	Measuring Volume	0.1 (L)
	Reaction time	≤10 (S)
	Measuring method	semiconductor sensor test
	Measuring Range	0-2.47mg/m³
TVOC	Reaction time	＜5 (S)
	Warm-up Time	15 (min)
	Measuring method	NDIR
	Measuring Range	0～5000ppm
	Temperature Coefficient	0.2％ FS/℃
	Temperature Collaboration	Automatic
	Measuring Accuracy	22℃ (72 ℉) ±45ppm±3％
	Stability	Within the useable life (15 years), less than 2 ％ of measuring range
CO2	Collaboration	Periodically ABC Logic automatically (No user action required)
	Non liner	<1%FS
	Pressure Coefficient	0.13％ read in mmHg
	Reaction time	To 90％ of change <2 minutes
	Refresh Rate	2s
	Warm-up Time	<2 min (Operation)
		10 min (max accuracy)
	Display	Resolution 1ppm/1ppm

	Resolution	1℃
Temperature	Accuracy	±1℃
	Repeat	±1℃
	Reaction Time	5s
	Measuring Range	0-99℃
	Drifting Rate	＜0.04℃ /yr
Humidity	Resolution	1%RH
	Accuracy	±2%RH
	Repeat	±1%RH
	Delay	±1%RH
	Non liner	＜0.1%RH
	Reaction Time	8s
	Measuring Range	0-100%RH
	Drifting Rate	＜0.5%RH/yr
Comm Ports		1 way RS485, comm rate 9600 (default), 1~254 comm port, max network node128; As MODBUS slave, used for data transfer; wifi
Operating Temperature		0～50℃
Operating Humidity		0～80%RH, no condensing
Storage Temperature		-10～50℃
Weight		200g
Exterior Dimension		86×86 ×50mm
Comm Port		11 post connector
Power Consumption		5W
Wiring Standard		Sectional area<2.5mm2

6 | Pollutant Abbreviation

Gas Type	
P	PM2.5 and PM10
T	TVOC
C2	CO2

Abb	Type
R	RS485 Comm port
W	WIFI Comm port

K	PTC2	R

7 | Air Quality Controller Wiring Map

Intelligent Fresh Air Controller

- L / N → AC:220V Power Source
- COM → Control point: Shared
- V2 → Control point: Reserved 2
- V1 → Control point: Reserved 1
- H → Control point: Fan Speed High
- M → Control point: Fan Speed Medium
- L → Control point: Fan Speed Low
- GND → GND
- B → SB-
- A → SA+

RS485 Modbus

8 | Controller Operation Instruction

8.1 Induction Button

Controller button for capacitive sensing principle, with the click of the finger will trigger the button function.

Notice:

When the device is powered on, the system will automatically calibrate the sensor button in first 5 seconds.

Do not touch the button during this time. Otherwise, it may cause the button calibration to fail.

If the sensor calibration fails at power-up, please power on again.

8.2 Power On/Off

Press the power button ⏻ for 1 second while the controller is powered off, the controller will be turned on;

Press the power button ⏻ for 1 second while the controller is powered on, the controller will be turned off;

8.3 Fan Speed Adjustment

In the manual mode, press the fan speed button ⊙⊙, adjust the fan speed ▁▃▅▇.

8.4 Auto Mode

Press the Auto Mode button, controller enter the Automode, controller will automatically operate the equipment base on the present time and air quality.

8.4.1 Time Control

User can set the device operation date and time range

When the system is in the non-working set time, the system automatically stops;

When the system is in the working set time, the system automatically runs according to air quality.

8.4.1

8.4.2

8.4.2 Air Quality Parameter Control

User sets 3 parameters for each monitoring pollutant in the air:

When the air quality is lower than low setting value, fan stops; when the air quality is between low setting value and middle setting value, fan runs at a low speed;

When the air quality is between middle setting value and high setting value, fan runs at a middle speed;

when the air quality is higher than high setting value, fan runs at high speed.

8.5 Parameter Setting

Long press the automatic mode button for 3 seconds to enter Setup page, Press the Auto Mode button for 3 seconds to exit the setup mode.

In advanced settings More..., user can set the advanced parameters of the device.

8.5.1 MODBUS Comm Address Setting
User can set MODBUS address of the device.

8.5.2 Maintenance Time Setting

When the remaining time of consumables is zero, the controller will prompt for device maintenance.

After the device is maintained, click the Replace button to reset the timer.

8.5.3 Sensor Parameter Setting

PM2.5 sensor operating parameters setting, user can set the sensor runtime and rest time.

8.6 Display Brightness

The brightness of the display is automatically adjusted according to the ambient light.

When the ambient light is too dark, the screen will turn off automatically after 30 seconds.

Press any button to turn on the screen again.

8.5.3

9 | Precautions

Tips:

9.1 It need 5 minutes or longer for the CO2 sensor and TVOC sensor to warm-up then begin to regular work. Please wait patiently.

9.2 The product is made of high-precision sensors and circuit element, please place the product in a horizontal, dry, non-direct light environment.

9.3 Do not place this product in the environment where the PM2.5 concentration more than 999 μg / m³ and TVOC concentration index more than 9.99 mg / m³. Product exposed to high concentrations of polluted air will cause damage to the sensors and lead to the equipment in abnormal status.

9.4 Avoid strong draft interfering with the monitoring results when measuring; place the device in a relative low draft area.

9.5 Do not block the air sampling inlet during use.

9.6 Do not place heavy weight on the unit, or it may cause malfunction of the unit.

9.7 The unit is not waterproof. Do not invasion or splash any liquid to this machine. If this happens, cut off the power supply immediately, and contact the service hotline.

9.8 Do not use the machine in the environment of rain, snow and humid climate, otherwise it may cause malfunction of the unit.

9.9 Do not insert spikes, flammable or metal objects into air vent or socket of the machine. Otherwise, it may cause electric shock, burning, smoke or fire.

9.10 Do not allow children to contact the product to prevent children from disassembling and swallowing parts.

9.11 Please do not disassemble or repair the unit. It may cause malfunction or electric shock or fire. If you have any questions, please call the service hotline. Our company shall not be responsible for any loss caused by user's dismantling.

9.12 Please place the unit in a stable and safe location. Avoid accident drop which may cause body harm.

9.13 If the machine is found abnormal sound, smell or smoke, fire, should immediately cut off the power, and contact the service center in time to find the cause of the malfunction.