麦芽传感科技
Maiya Sensor Technology

MST 420P

Portable Gas Detector



Product introduction

MST 420P portable gas detector can be used in: rapid detection of a variety of gas concentration and measurement of environmental temperature and humidity, if the measurement exceeded the limit value, the alarm will emit sound & light vibration as alarm. MST 420P adopted 2.31-inch high-definition color screen for real-time display, adopted the gas sensors of industrially well-known brands, and the main detection principles include: electrochemical, infrared, catalytic combustion, thermal conductivity, PID photoionization, and so on. Advanced electric circuit design, mature kernel algorithm processing, unique external appearance design, had achieved a number of patents about the software works, external appearance, and so on. MST 420P is suitable for detecting the concentrations of gases in the atmosphere environment in the pipeline or confined space; and the purity of the gas leakage and various high concentration single gases with the background gas as nitrogen gas or oxygen gas. The types of gases for detection are more than 500 types.

Features and benefits

- It is possible to simultaneously detect 1 ~ 4 types of gases, and the units can be switched freely
- Rich human-machine interface
- Function of large-capacity data storage (capacity can be customized), multiple storage modes are supported, and RS485 communication is an optional configuration
- It is possible to switch among three display modes
- Graphical display, and use the form of curve to reflect the trend of gas concentration changes in a certain period of time
- It is possible to set whether to display the maximum value, minimum value, average value or not
- Standard USB charging port, with charging protection function, USB hot-plug supported, and the charging status instrument can work properly.
- 4600mA high capacity rechargeable polymer battery is adopted, so it is possible to work for a long period of time
- Real-time detection or timing detection is supported; when no detection will be done, it is possible to shut down the pump so as to extend the startup time
- Multiple alarm modes, and multi-directional and three-dimensional indication alarm states
- Multiple alarm mode settings: low alarm, high alarm, interval alarm, and weighted average alarm
- Chinese and English interfaces can be selected
- Zero-point automatic tracking; long-term use will not be affected by the zero drift
- Multi-level calibration for target points, can ensure the linearity and accuracy of the measurements
- Mis-operation recognition function: automatic recognition and prevention of the concentration calibration mis-operation, which is possible to avoid the poor performance that may be caused by human factor

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Technical parameter

Gases to be detected	Arbitrary combination of 1 ~ 4 types of gases such as toxic gases, oxygen gas, carbon dioxide, inflammable and explosive gases, TVOC, and so on. Optional configuration: temperature and humidity measurements.				
Application scenarios	All the cases which requires the portable rapid detection of gas concentrations such as petroleum, chemical, pharmaceutical, environmental protection, combustion gas distribution, warehousing, smoke gas analysis, air governance, and so on.				
Detection range	0 ~ 1, 10, 100, 1000, 5000, 50000, 100000ppm, 200 mg/L, 100%LEL, 20%, 50%, 100%Vol, can be selected; and other ranges can be customized.				
Resolution	0.01ppm or 0.001ppm (0 ~ 10 ppm); 0.01ppm (0 ~ 100 ppm), 0.1ppm (0 ~ 1000 ppm), 1ppm (0 ~ 10000 ppm or more), 0.01 mg/l (0 ~ 200 mg/l), 0.1% LEL, 0.01%Vol, 0.001% Vol				
Detection principle	Electrochemical, catalytic combustion, infrared, thermal conductivity, PID photoionization, and so on, depending on the type of gas, range, field environment and user demand.				
Sensor service life	Electrochemical principle: 2 ~ 3 years; Oxygen gas: 2 years or 6 years can be selected; infrared principle: 5 ~ 10 years; catalytic combustion: 3 years; thermal conductivity: 5 years; PID photoionization: 2 ~ 3 years.				
Maximum allowable error	≤±3% F.S (higher precision levels can be customized)				
Linearity	≤±2%	Linearity	≤±2%	Linearity	≤±2%
Response time	T90≤30 seconds			Recovery time	≤30 seconds
Working environment	Temperature: -40 ℃ ~ + 70 ℃, humidity: ≤10 ~ 95% RH, and built-in filters can be used in high humidity or high dust environment.				
Sample gas temperature	-40 ℃ ~ + 70 ℃, and the optional configuration of high-temperature sampling and cooling filter handle will be possible to detect the smoke gas at the temperature of 400 ℃ or higher.				
Temperature and humidity measurement	Optional configuration: temperature at -40 ℃ ~ + 70 ℃, accuracy level at 0.5 ℃; humidity at 0 ~ 100% RH, precision level at 3 % RH				
Power supply	3.7VDC、4600mAh high capacity rechargeable polymer battery				
Display mode	2.31-inch high-definition color screen				
Detection mode	Built-in pump-suction type measurement, and flow rate at 500 ml / min. Calibration flow rate should be greater than 500 ml / min, three-way pipe should be connected, so as to ensure that the excessive gas will be discharged from the bypass				
Alarm mode	It is possible to set as sound & light alarm, vibration alarm, sound & light + vibration alarm, turning off the alarm.				
Communication interface	USB (charging and communication), optional: RS485 communication interface				
Data storage	Standard configuration is the data storage capacity for 100, 000 entries				
Protection level	IP65				
Explosion-proof type	Intrinsically safe type				
Explosion-proof mark	Exia IIC T4				
Exterior dimensions	178×67×40mm(L×W×H)				
Weight	300 g				
Standard accessories	Manual, qualification certificate, warranty card, USB charger (including the data cable), high-grade aluminum instrument case, belt clip, humidity dust filter				
Optional items	Temperature and humidity measurement function, 1.2 m retractable sampling handle (1-10 meter hose, and the standard length is 1 meter), 0.4 meter stainless steel sampling handle (with dust filter, not retractable), high temperature sampling and cooling filter handle, high temperature humidity pretreatment system, multiple humidity dust filter, hanging rope, CD-ROM (upper level computer communication software)				

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Part of gases specifications are as following:

Gases	Range	accuracy	resolution	response time	Principle
oxygen (O_2)	0-30%/100%VOL	＜±3%(F.S)	0.1%VOL	<15s	EC
combustible gas (Ex)	0-100%LEL	＜±3%(F.S)	0.1%LEL	<10s	Catalytic Oxidation
	0-100%LEL/VOL	＜±3%(F.S)	0.1%LEL/VOL	<10s	NDIR
carbon oxide (CO)	0—1000/2000ppm	＜±3%(F.S)	0.1ppm	<25s	EC
hydrogen sulfide (H_2S)	0-100/2000ppm	＜±3%(F.S)	0.1/1ppm	<30s	EC
sulfur dioxide (SO_2)	0-100ppm	＜±3%(F.S)	0.1ppm	<30s	EC
Nitric Oxide (NO)	0-250ppm	＜±3%(F.S)	1ppm	<30s	EC
nitrogen dioxide (NO_2)	0-20ppm	＜±3%(F.S)	0.1ppm	<60s	EC
Chlorine (Cl_2)	0-20ppm	＜±3%(F.S)	0.1ppm	<30s	EC
Ammonia (NH_3)	0-100ppm	＜±3%(F.S)	0.1/1ppm	<50s	EC
hydrogen (H_2)	0-1000ppm	＜±3%(F.S)	1ppm	<60s	EC
hydrogen cyanide(HCN)	0-50ppm	＜±3%(F.S)	0.1ppm	<100s	EC
hydrogen chloride (HCl)	0-20ppm	＜±3%(F.S)	0.1ppm	<60s	EC
hydrogen phosphide(PH_3)	0-20ppm/1000ppm	＜±3%(F.S)	0. 1ppm	<25s	EC
Ozone (O_3)	0-20ppm	＜±3%(F.S)	0.01ppm	<30s	EC
chlorine dioxide (ClO_2)	0-20ppm	＜±3%(F.S)	0.1ppm	<30s	EC
ethylene oxide (C_2H_4O,ETO)	0-100ppm	＜±3%(F.S)	0.1ppm	<45s	EC
Formaldehyde (CH_20)	0-20ppm	＜±3%(F.S)	0.01ppm	<30s	EC
silane(SiH_4)	0-50ppm	＜±3%(F.S)	0.1ppm	<60s	EC
hydrogen fluoride (HF)	0-10ppm	＜±3%(F.S)	0.1ppm	<60s	EC
fluorine (F_2)	0-1ppm	＜±3%(F.S)	0.01ppm	<60s	EC
Phosgene ($COCl_2$)	0-1ppm	＜±3%(F.S)	0.01ppm	<60s	EC
Total Volatile Organic Compound gases (TVOC)	0-10/100/2000ppm	＜±2%(F.S)	0.01/0.01/0.1ppm	<30s	EC
Total Volatile Organic Compound gases (TVOC)	0-10/100/2000ppm	＜±2%(F.S)	0.01/0.01/0.1ppm	<30s	PID

Note: please call us to consult about other gases and other detection range which are not listed in the above table.

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