Methane Module for Mine Use

（Model：ZC01）

Manual

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ZC01 Methane Module for Mine Use

This ZC01 Module adopts high-stability catalytic gas sensor, high-performance micro-computer processor, and infrared remote adjustment mode, which makes the module with high reliability and simple debugging. Besides, this module have sensor breakdown warning and zero calibration limit functions, avoiding module continuous alarm or no alarm because of the broken sensor. When the methane concentration in air gets higher than the alarm point, it will control the mining lamp to flicker, to remind the workers to ventilate or evacuate timely. When the methane concentration declines to normal point, it will control the mining light recovery the normal lighting status, so that the personnel and property safety is assured and unnecessary loss is avoided.

1.Parameters

1.1Working Conditions

Environment temperature: (0-35)℃

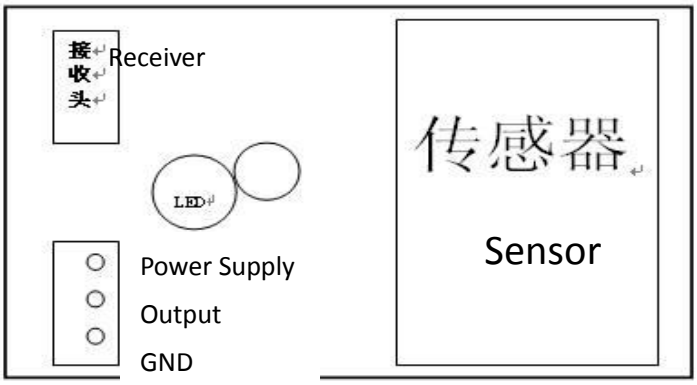
Environment humidity: ≤98%RH

Atmosphere: (80-110)Kpa

H_2S content limit: ≤6ppm

1.2Technical Parameters

Parameters	Unit	Value	NOTE
nominal voltage	V	3.1-5.0	
nominal working current	mA	100±10	
nominal control voltage	mA	≤110	
Alarm point	vol	1.0%	Preset before leaving factory
Alarm error		≤0.1%	CH_4 content (0.5-1.0%)
Zero stability		±0.1%CH_4	Max zero drift every week
Response time	s	≤20	
Flick Frequency	Hz	1±0.2	Rate in air 1:1, CH_4 content.0%
		2±0.2	Rate in air1： 1, CH_4 content >1.2%



1.3 Applications

Methane alarm mine lamp, industrial flammable gas leakage detector

2. Usage Steps

2.1 Insert the module into the socket, cover the shell and twist the screw tightly, connect to DC power supply, turn on the switch to light up the miner's lamp.

2.2 When the CH4 concentration gets higher than the preset alarm point, the module can control the lamp to flicker with alarming; when the CH4 concentration is lower than the preset alarm point, the module can control the lamp to recovery the normal light status.

3.Calibration

3.1 Zero calibration

Turn on and keep the status for 10 minutes, press the "-" key in the remote control direct to the indicator, then the zero calibration is finished.

3.2 Set the alarm point

After warming up and zero calibration, flow 1.0%CH_4(flow should between 150-160mL/min) into the gas inlet, press "+"key in the remote control at the same time, then the yellow light begins flicking and it keeps about for 20 seconds. The calibration finishes once the flicking stops. Then the red light is flicking and main light begins twinkle, the alarm point is set.

3.3 Check the alarm point

After warming up, flow in 0.90%CH4 gas with 150-160mL/min flow. After the flowing is stability for 20s, the module shouldn't alarm and the light doesn't flicking. If it flicks, it means the preset alarm point is lower and calibration should be done again; Then flow in 1.0%CH4 gas with 50-160mL/min flow, after the flowing is stability for 20s, the module should alarm. Otherwise calibration should be done again until it confirm to the above description.

4 Maintain

4.1 Keep the louver clean and make the gas composition in module and out module same.

4.2 Please do the calibration using recommended gas of coal industry weekly to ensure the good accuracy of the alarm point.

4.3 Please brush the module surface gently to remove pollutants if required. Do not use acidic or alkaline cleaning agent.

4.4 If the module is sprinkled with water accidently, please cut the power immediately, and send the

module to designated locations for professional checking.

5 Cautions

5.1 Avoid to contact the material contains silicone such as thermal conductive silicone, silica gel &etc.

5.2 Avoid to store or use it in the environment where there is sulfide, silicide, halogen or other compound.

6 FAQ

Fault	Possible reason	Solution
Yellow light is always lighting	Calibration is not done.	Do calibration again.
	Calibration fails because the standard gas flowing in lately.	Do calibration by normal steps.
	Zero calibration fails.	Flow in standard gas and do calibration again.
Red light is always lighting and main light doesn't flickers.	R6,R7 short circuit or rosin joint.	Weld R6,R7 again.
	Sensor rosin joint or short circuit	Weld the sensor again
	Sensor is broken.	Replace the sensor.
Red light is always lighting and main light flickers	Sensor contacts the target gas with too high concentration.	It can recover in 1 min after the high concentration gas dissipates.
Alarm in air	Do wrong calibration or alarm point drifts.	Do calibration again.

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