SAFETECH[®] Methan Gas Detector



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Plus Temperature & Humidity Sensor

Model ST-0136

User Manual



- 1) Human Machine Interface
- 2) Methane Gas Heater
- 3) Temperature and Humidity sensing unit
- 4) Battery Charging port
- 5) ON OFF Switch

Graphical User Interface:





- 1) Temperature (Degree Celsius)
- 2) Relative Humidity Percentage
- 3) Battery indicator
- 4) Gauge for Methane Gas Concentration (Multiplication of 1000 ppm)
- 5) Gauge for Relative Humidity Percentage
- 6) Set screen brightness to 100 %
- 7) Set screen brightness to 50 %
- 8) Set screen brightness to 25 %
- 9) Methane Gas Concentration (ppm)
- 10) Gauge for Temperature (Degree Celsius)
- 11) Battery charging indicator

Specifications:

- Methane sensitivity:300-10000ppm
- Calibration Preheat time:Over 48 hours
- Humidity: 0-100% (±2-5%)
- Temperature: -40 to 80°C (±0.5°C)
- Input volts: 5-24 VDC
- Input current: 1A at least at 5 VDC
- Standby time: 4-7 hours
- Charging time: 3-4 hours

Power ON OFF:

Push Toggle button towards down to turn the sensor ON. Pushing same button towards UP turns the sensor OFF.

Methane concentration:

After switching the sensor ON, it takes few seconds to stabilize the sensor output. Under low battery conditions, this time duration may increase. Keeping the sensor in polythene bag will output false gas concentration measurements. Let the sensor switched ON under open environment for couple of minutes to overcome these false readings. Preheating the sensor for couple of minutes before detecting methane gas is recommended and will produce more accurate results.

Note:

Gas concentration (ppm) is an estimated value calculated with the help of typical sensitivity curve. For accurate results, more sophisticated calibration may be required.

Calibrating the sensor:

Calibration is necessary to be practiced every thirty days for better results. Press calibration button on graphical user interface to start it. It will take few seconds to complete the calibration process.

Note:

Always calibrate under Gas free environment. Pre-heat the sensor (Keep sensor switched ON) for at least 24 hours before calibrating gas sensor. Presence of other gases or pollution or high humidity or temperature will affect the calibration process and outputs from sensing units will be less accurate.

Change screen brightness:



Set the brightness to 30 %

Set the brightness to 50%

Set the brightness to 100 %

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Troubleshooting:

- Screen flicks on bootup
 - This is a normal characteristic of Human Machine Interface which is equivalent to screen animation.
- Stuck on boot screen
 - Battery is low, connect the charger. It is not recommended to operate the sensor while battery is less than 30% or charger is plugged in.
- High gas readings on start up
 - Gas sensor requires time to burn its heater and start sensing combustible gases in environment. Materials such as polythene or silicone etc. also cause fluctuation in gas sensing characteristics.
- Tick sound on connecting charger while sensor is switched ON only
 - It is a safety feature of SAFTEC Methane Gas Detectorto avoid overcharge of battery. When sensor is switched ON and charger is connected, it switchessensing unit power supply feed from battery source to charger.
- Restart when charged plugged in
 - As a safety measurement, while switching power supply feed from battery source to charger the sensing unit is shut downfor a while and restarts it back.
- Battery indicator fluctuates when battery is less than 50 %
 - This is normal, as gas sensing unit consumes a lot of current while operating. It causes battery-hog which settles down after shutting down the sensor.

Caution:

Following conditions must be prohibited;

1) Exposed to organic silicon steam

Organic silicon steam cause sensors invalid, sensors must be avoid exposing to silicon bond, fixature, silicon latex, putty or plastic contain silicon environment

2) High Corrosive gas

Exposure to high concentration of corrosive gas such as H_2Sz , SO_X , Cl_2 , HCl etc., willnot only result in corrosion of sensors structure, also it causes sincere sensitivity attenuation.

3) Alkali, Alkali metals salt, halogen pollution

The sensors performance will be changed badly if sensors be sprayed polluted by alkali metals saltespecially brine, or be exposed to halogen such as fluorin.

4) Touch water

Sensitivity will be reduced when spattered or dipped in water.

5) Freezing

Do avoid icing on sensorsurface, otherwise sensor would lose sensitivity

Following conditions must be avoided

1) Water Condensation

There is alittle impact ofslightwater condensation on to the sensor's performance under indoor conditions. However, if watercondenses over sensor's surface and keeps for a certain period, sensitivity will be decreased.

2) Used in high gas concentration

No matter the sensor is electrified or not, if long time placed in high gas concentration, if will affectsensor's characteristic.

3) Long time storage

The sensors resistance produces reversible drift if it's stored for long time without electrifying it. Sensors should be stored in airproof without silicone gel bag with clean air.

4) Long time exposed to adverse environment

No matter the sensor remains electrified or not, if exposed to adverse environment for long time, such ashigh humidity, high temperature, or high pollution etc., it will affect the sensor's performance badly.

5) Vibration

Continual vibration will result in sensor's down-lead response then rupture.

6) Concussion

If sensor's meet strong concussion, it may lead its lead wire disconnected.

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