Air Quality (VOC) Duct Detector

SDQ 010

Jan.08

SDQ 010

Technical Data

Sensor reference	Tin Dioxide film
Sensitivity	See separate data, rear side
Cal. accuracy	±5% of reading
Re-calibration	2 years
Element life	Min. 5 years, but up to 10
Housing	
Material	flame retard. ABS
Dimensions	75 x 90 mm
Probe	200 x 25 mm
Protection	IP65
Ambient range	
Temperature	0...+50°C
Relative humidity	0-100% RH
Consumption	45 mA average
Power supply	24 Vac/dc (±10%)
Connections	3-wire
Output (adjustable)	0-10Vdc 0Vdc = lo contamination 10Vdc = hi contamination
EMC	EN-50081-1 Emmission EN-50082-1 Immunity
Weight	300 g

Adjustments

CAL = Calibration
GAIN = Gain
SPAN = Max output volts

LK1 = Set max output/operate, factory setting operate.
LK2 = Output damped ON or OFF, factory setting ON. LK2 can be ON for response damping or OFF for no damping.

NB! Jumpers LK1 should not be changed.

Features

- **Senses presence of gases to monitor air quality**
- **Response closely tracks CO_2 levels**
- **Precalibrated for ease of commisioning**
- **Long term reliability**
- **0-10 Vdc output, 24Vac/dc supply**
- **Low cost air quality measurement**
- **Detects pollutants such as cigarette smoke as well as gases related to high occupancy**

Design Features

The SDQ 010 duct mounting air quality transmitter has been produced to meet the requirement for controlling the quantity of fresh air introduced by ventilation plants during periods of little or no occupancy.

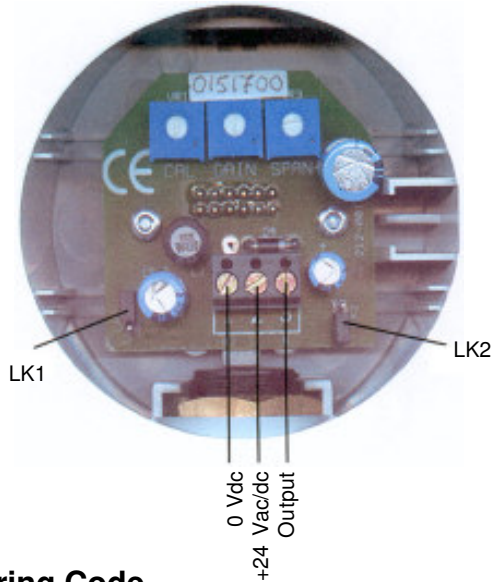
This results in energy savings by restricting the heating or cooling of intake air when building or zone is unoccupied.

The sensing element is selected for a broad band sensitivity to the volatile organic compounds expected to be present in ambient air and will respond in many cases to concentrations as low as tens of parts per million.

This is particularly important where compounds such as carbon monoxide are found a typical response range being 10-50 ppm, which is within occupational health guide lines, therefore these transmitters can make a valuable contribution to the comfort of building occupants in addition to the energy savings gained.

The SDQ 010 air quality transmitter being at semiconductor design with industry compatible 0-10 Volt output, is reliable in use and requires little in the way of installation and maintenance.

Connections



Ordering Code

SDQ 010 Duct Air Quality Transmitter 24Vac/dc,0-10Vdc

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Application

The SDQ 010 air quality transmitter should be installed as part of the building management system or as an addition to electrically operated damper control systems and configured to override the air control dampers minimum position when the signal is low and allow the dampers to close off the fresh air intake.

When the signal level rises the air dampers should start to modulate to the fresh air position.

The SDQ 010 air quality transmitter incorporates a rate of rise damping circuit which may be deselected if required, during commissioning for example.

This facility rejects short term disturbances which would otherwise cycle the air dampers unnecessarily.

It is not practical to give specific signals for exact damper positions as the location, building type and design of the ventilation system serving it have to be taken into account, however, as guide signal levels below 2 volts indicate clean air and therefore, the fresh air dampers may remain closed, 2-6 volts is a suitable range for dampers to move to required fresh air position with signals over 6 volts indicating the need of further ventilation.

Location

The SDQ 010 duct air quality transmitter should be fitted to the ventilation ductwork in a suitable position to monitor the air returning from the area to be controlled.

Provided the filter is in place the transmitter is not effected by air turbulence or velocity and for this reason it is not recommended to operate the system with the filter removed, for example during periodic cleaning.

Duct mount air quality transmitters should not be located in systems where airborne oil or grease is present as this will contaminate the filter, for this reason kitchen exhaust ducts and some industrial plants should be avoided.

The SDQ 010 is intended for use in controlled environments and normal changes in temperature and humidity have little effect, however, extremes of temperature and in particular humidity affect the way some gasses react and this should be considered prior to installation.

Typical areas where air quality transmitters will cater for variable occupancy are theaters, cinemas, conference centers, schools and colleges, restaurants and office buildings.

Commissioning & Calibration

Units are supplied factory calibrated and do not generally require adjustment.

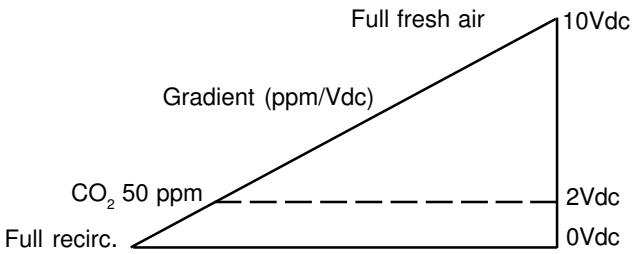
Units can be adjusted to compensate for high levels of background contaminants in high pollution areas.

Following power up, a stabilisation period of 2-3 minutes should be allowed before checking functionality.

Pre-commissioning checks are made after approximately 30 minutes.

Final commissioning should only be carried out after the unit has been running for a minimum of seven days.

Output Signal



Normal operation is to set dampers to minimum fresh air at below 2Vdc.

As the signal increases, dampers are modulated to fully open at 8 - 10Vdc.

Sensitive to a range of Contminants

- Acetone
- Acrylonitrile
- Ammonia
- Benzene
- **Carbon dioxide**
- Carbon Monoxide
- Chlorine
- Dimethyl amine
- Ethane
- Ethylene
- Ethylene oxide
- Formaldehyde
- Hydrogen
- Hydrogen sulfide
- Isobutane
- Methane
- Methanol
- Methyl chloride
- Methylene chloride
- Methy ether
- Methyl acetate
- Methyl ethyl ketone
- n-Hexane 2
- n-Petane
- Propane
- R-11
- R-12
- R-502
- R-123
- Sulfur dioxide
- Vinyl chloride