Model : DCO-S400

CO/Temp Sensor & Ventilation Controller

Product Description

The model DCO-S400 is a digital ventilation controller specifically designed to monitor carbon monoxide, and temperature in an enclosed or semi-enclosed car parks and to regulate car-park ventilations according to these parameters. DCO-S400 is designed for easy installation and minimum maintenance during operation. It can be operated in stand-alone mode by direct connection to the fan control panel and ON/OFF controls the ventilation fans through buffer relays.

Features

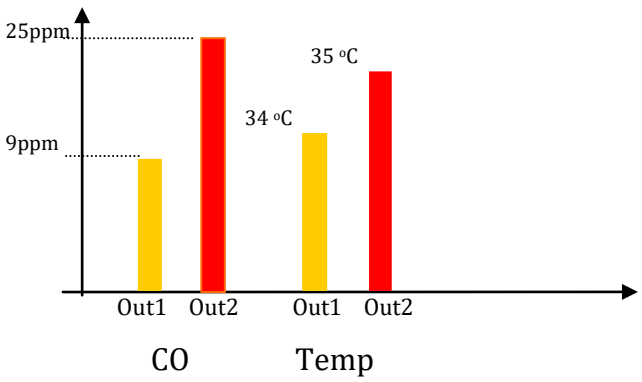
- Multi-functional sensing & controlling of CO and temperature in the car park environment with programmable control settings.
- State-of-art electrochemical sensor cell to measure CO gas in parts-per-million (ppm).
- Precision temperature sensor.
- Saves energy costs with flexible demand controlled ventilation (DCV) strategy.
- Two relay outputs (normally open contacts) with pre-settings (user adjustable) for direct control of ventilation fans with ON/OFF and/or stage controls.
- Temperature control and display function can be enabled or disabled with jumper selects.
- Fail-safe design with N.C. contacts during sensor power failure.
- Built-in System Test (ST) function for wiring connection during test & commissioning.
- Long CO sensor cell life with typical maintenance interval > 1 year;
- Built-in temperature compensation on CO measurement.
- Meets general sensor coverage guideline of 500 square meters per sensor.

Application

DCO-S400 is designed for enclosed and/or semi-enclosed car park ventilation applications. It can be used both to control the ventilation system and/or be a part of an alarm system.

It is well known that all automobile engines generate CO gas and that we shall be protected against this toxic gas. By measuring the CO levels in the car park and regulate the ventilation so as to keep the CO level below the recommended limit, the most cost effective ventilation system maybe derived.

In tropical areas where temperature comfort can be a secondary control parameter. When the temperature in the car park has risen to a preset limit, the ventilation can be used to create the *wind effect* so as to improve the comfort level.



The CO or temperature set-points, whichever reaches the preset trip point activates the relay contacts. For instance, 9ppm CO or 34 °C in temperature will trigger first relay contact at Out1; while 25ppm CO or 35 °C temperature will trigger second relay contact at Out2.

Note :
DCO-S400 is designed for car-park ventilation & general measurement purposes applications only, it is not designed for safety application.

CO Measurement:

Operating principle	Electro-chemical cell
Gas sample mode	Diffusion
Response time (1/e)	Less 1 min. diffusion time
Measurement range	0 ~ 300 ppm
Output analog signal range selection	0~50 / 0 ~100 / 0 ~ 200 / 0 ~ 300 ppm (default 0 ~ 100ppm)
Accuracy	Better than +/- 5 ppm (note: better accuracy can be achieved with +/2% special calibration gas)
Resolution	1 ppm
Sensor cell life expectancy	5 years

Temperature Measurement:

Operating principle	Precision semiconductor temperature sensor
Measuring range	0 to 50 ^{o}C
Accuracy	±0.75 ^{o}C
Digital resolution	0.1 ^{o}C

General Performance:

Compliance with	EMC European Council Directive 2014/30/EU
Operating temperature range	0 to 50 ^{o}C
Operating humidity range	0 to 90% RH (non-condensing)
Maintenance interval	Yearly verification or re-calibration recommended
Storage temperature	-20 to 60 ^{o}C

Electrical:

Power input	Min. 12V DC /AC, max. 30VDC / 28 VAC
Power consumption	< 2 watts average
Wiring connections	Terminal block (see figure) , 2mm^2 maximum

Outputs:

Relay contacts	Out 1 & 2, isolated N.O. 1mA/5V up to 1A/50VAC/24VDC With default set-points *(see graph in page 1).*
Display	4 digit LCD display with ppm / ^{o}C indicator
Pushbutton	For on-board maintenance switches (refer to manual for details)

Terminal Connections:

G+	:	24VAC/DC
G0	:	System Ground
1CM	:	Relay 1 common
1NO	:	Relay 1 n.o. contact
2CM	:	Relay 2 common
2NO	:	Relay 2 n.o. contact