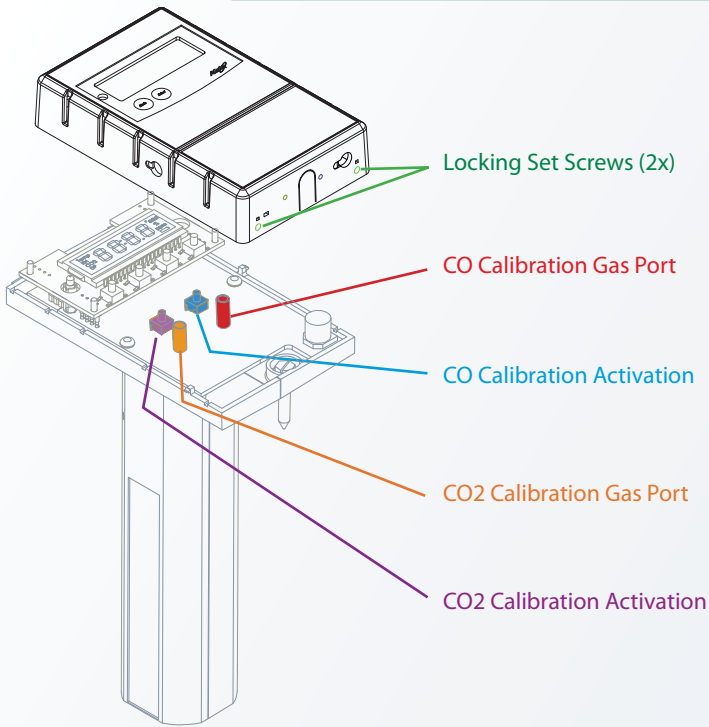




KCOC Series Duct Mount Wiring and Calibration Instructions



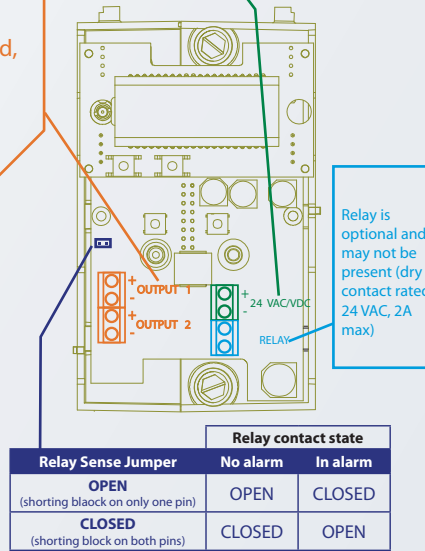
Outputs available in either Voltage (0-10V) or Current (4-20mA)

Not all outputs are used on every unit. See table below for output assignments.

All '-' terminals are electrically connected, but isolated from power supply.

KCOC-CO2	
Output	Sensors
Output 1	CO2
Output 2	CO
KCOC-RH	
Output	Sensors
Output 1	CO
Output 2	RH
KCOC-VOC	
Output	Sensors
Output 1	CO
Output 2	VOC
KCOC-D	
Output	Sensors
Output 1	CO

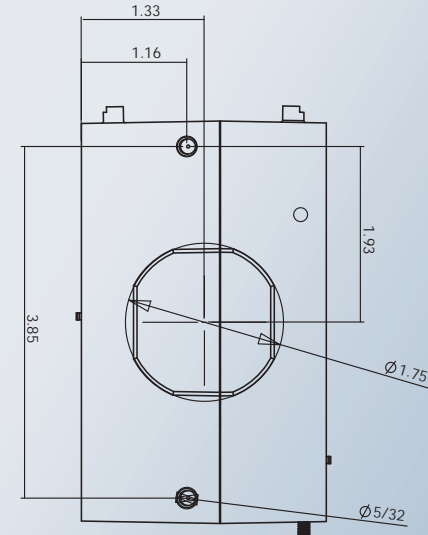
Power input
18-30 VDC
18-28 VAC
(polarity matters for VDC only)



Relay Sense Jumper	Relay contact state	
	No alarm	In alarm
OPEN (shorting block on only one pin)	OPEN	CLOSED
CLOSED (shorting block on both pins)	CLOSED	OPEN

Warning And Alarm Indication		
Sensors	Warning level LED is YELLOW relay actuates (if equipped)	Alarm level LED is RED beeper sounds (if equipped)
CO2	1000 ppm	2000 ppm
CO	25 ppm	50 ppm
RH	No warning or alarm indication	
VOC	Warning level	Alarm level

Analog Output Scaling					
Sensors	CO2 ppm	CO ppm	RH %	VOC	
Current Output	4 mA	0	0	0	clean
	12 mA	1000	100	50	warning
	20 mA	2000	200	100	alarm
Voltage Output	0 Volts	0	0	0	clean
	5 Volts	1000	100	50	warning
	10 Volts	2000	200	100	alarm



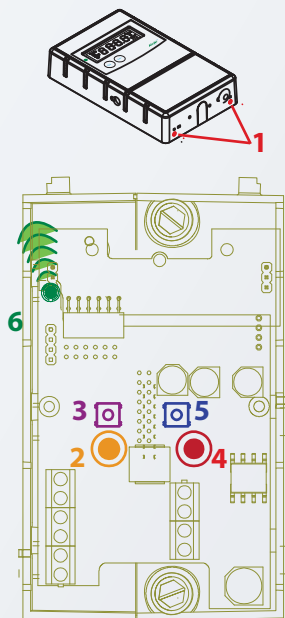
Duct Mounting Drill pattern
(Dimensions in inches)

Calibration Kit



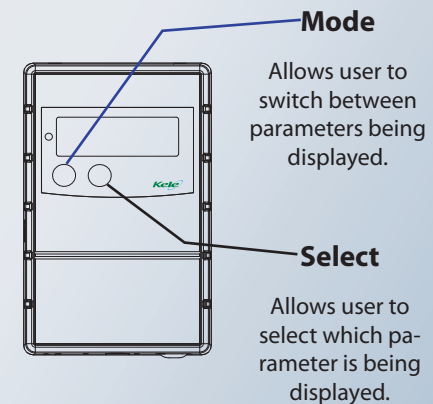
Your sensor comes factory-calibrated and does not need to be calibrated upon initial installation. Calibration kits are available for both CO and CO2.

CO2 and CO Calibration Procedure

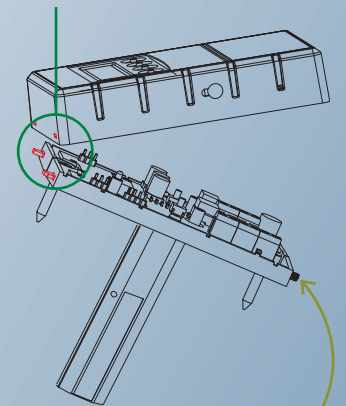


1. Back out set screws along bottom edge of enclosure cover and remove enclosure cover. Only one gas can be calibrated at a time following the procedures below:
2. For **CO2 calibration**, remove dust cover from left-most post. Connect 2000 PPM CO2 calibration gas. Turn on gas and allow to flow one minute before proceeding to step 3.
3. Press 'CO2 CAL' button for 5 seconds. LED will blink **yellow**. Proceed to step 6.
4. For **CO calibration**, remove dust cover from right-most post. Connect 25 ppm CO, **balance air**, calibration gas. Turn on gas and allow to flow one minute before proceeding to step 5.
5. For **CO calibration**, press 'CO CAL' button for 5 seconds. LED will blink **yellow**.
6. After 5 minutes the LED will **blink green**, indicating that the calibration process is completed.
7. Press and hold the applicable 'CO2 CAL' or 'CO CAL' button to accept calibration. The LED will turn **solid green** after only a few seconds.
8. At this point it is safe to turn off gas and remove gas tubing from calibration port.
9. When calibration is complete, replace dust cover(s) on gas calibration port(s).

Liquid Crystal Display (if equipped)



Align top and bottom latch and snap lid closed



Once lid closed, insert set-screws to lock enclosure. Requires 1/16" Allen Wrench

Introduction

The KCOC Series provides the ultimate in control of indoor air quality. Parameters sensed include:

1. Carbon Monoxide (CO)
2. Carbon Dioxide (CO₂)
3. Relative Humidity (RH)
4. Volatile Organic Compound (VOC)

A combination of any two of the above parameters may be sensed by the KCOC Series:

KCOC-RH = CO/RH
 KCOC-CO₂ = CO/CO₂
 KCOC-VOC = CO₂/VOC

Each of the above can be configured for wall or duct-mounting. Options include a SPDT Relay and a Liquid Crystal Display (LCD).

Control outputs are available in Voltage (0-10V) or Current (4-20mA).

A simple one-point calibration procedure and a built-in calibration ports make the KCOC simple to operate and maintain.

Displays and Indicators

The KCOC Series includes a single tri-color LED on the front panel which illuminates whenever the unit is operating. This LED indicates:

- **Green** -> all sensor/s at normal levels
- **Yellow** -> one or more sensors at Warning levels
- **Red** -> one or more sensors at Alarm level
- **Blinking Red** -> one or more sensors have failed

The LCD option adds 4 digit reporting to the front panel. The display shows the measured:

- CO concentration in parts per million (ppm)
- CO₂ concentration in parts per million (ppm)
- Relative Humidity in %

CARBON MONOXIDE SENSOR (CO)		
Parameter	Value	Comments
Sensor type	Electrochemical	
Measurement range	0 – 200 ppm CO	
Accuracy	± 2.5% of full scale	0 – 50 °C
Recommended Calibration Interval	2 years	
Sensor Life	5 years typical	Actual life depends on ambient humidity & temperature.

CARBON DIOXIDE SENSOR (CO ₂)	
Parameter	Value
Operating Principle	Non-dispersive infrared (NDIR)
Gas Sampling Method	Diffusion
Measurement Range	0-2000 ppm (Other ranges available by request)
Repeatability	± 20 ppm CO ₂
Measurement Accuracy	± 30 ppm ± 2% of reading
Recommended Calibration Interval	5 years
Warm Up Time	Less than 1 minute
Calibration	ONE Point : Single-button calibration (Patented)

RELATIVE HUMIDITY SENSOR (RH)	
Parameter	Value
Operating Temperature	0 to 50 °C
Measurement Range	0 to 99 % RH
Recovery time after 150 hours of condensation	10 Seconds
Humidity Hysteresis	± 1 % RH
Recommended Calibration Interval	Does not need calibration

VOLATILE ORGANIC COMPOUND SENSOR (VOC)	
Parameter	Value
VOCs detected	Alcohols, aldehydes, ketones, organic acids, amines, aliphatic and aromatic hydrocarbons
Typical response time	<1 minute to 90% full scale
Warmup time	2 Hours

Overall Specification	
Parameter	Value
Power Requirements	18 - 30 VDC or 18 - 28 Vrms AC
Power Consumption	2.5 VA (with out VOC sensor)
	4 VA (with VOC sensor)
Operating Temperature Range	0 - 50 °C
Operating Humidity Range	0 - 99% RH, non-condensing
Voltage Output (linear)	0 - 10 VDC full-scale standard
Optional Current Output (linear)	4-20 mA R _{LOOP} < 600 Ω
Storage Temperature	-10 to 60 °C
Dimensions	4.5 x 2.8 x 0.9 inches

Carbon Monoxide Sensor Notes

Concentrations above 200 ppm CO will always report 200 ppm.

Sensor failure causes the current loop output to less than 4 mA and the voltage output to full scale.

VOC Sensor Notes

VOC sensor does not report for the first two hours after power is applied. During this time display (if present) shows '----'.

This sensor is broadly responsive to a wide range of volatile organics and can not be used to quantify the specific concentration of any single compound.

