KCO2 Wall Mount Wiring and Calibration Instructions

Enclosure cover

Locking Set Screws (2)

CO2 Calibration Activation

CO2 Calibration Gas Port

Enclosure base

Junction box is for illustration purposes: not included with KTS
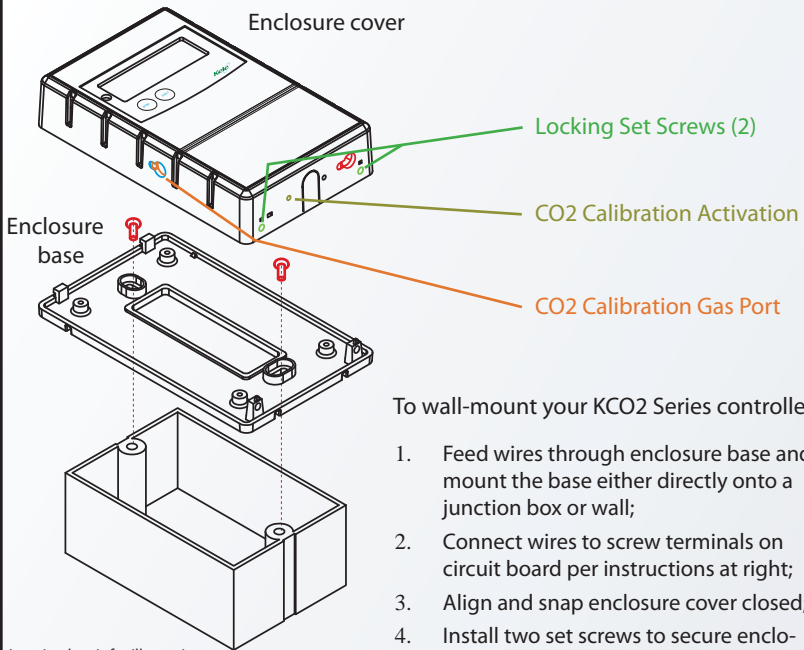
To wall-mount your KCO2 Series controller:

1. Feed wires through enclosure base and mount the base either directly onto a junction box or wall;
2. Connect wires to screw terminals on circuit board per instructions at right;
3. Align and snap enclosure cover closed;
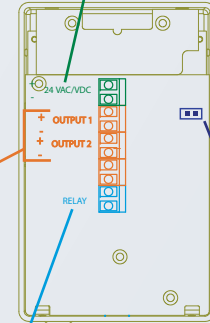4. Install two set screws to secure enclosure cover.

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.

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

24 VAC/VDC

+ OUTPUT 1
+ OUTPUT 2

RELAY

Relay is optional and may not be present (dry contact rated 24 VAC, 2A max)

Output	Sensors
Output 1	CO2
Output 2	RH

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

Align top and bottom latch and snap closed


Once lid closed, insert set-screws to secure enclosure cover.

Requires 1/16"Allen wrench.
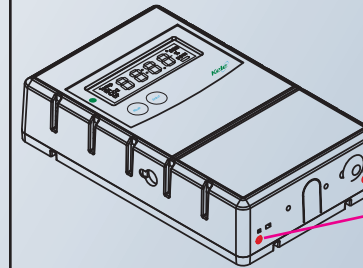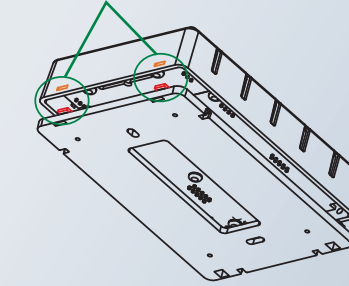
Warning And Alarm Indication		
Sensors	Warning level LED is YELLOW relay actuates (if equipped)	Alarm level LED is RED beeper sounds (if equipped)
CO2	1000 ppm	2000 ppm
RH	No warning or alarm indication	

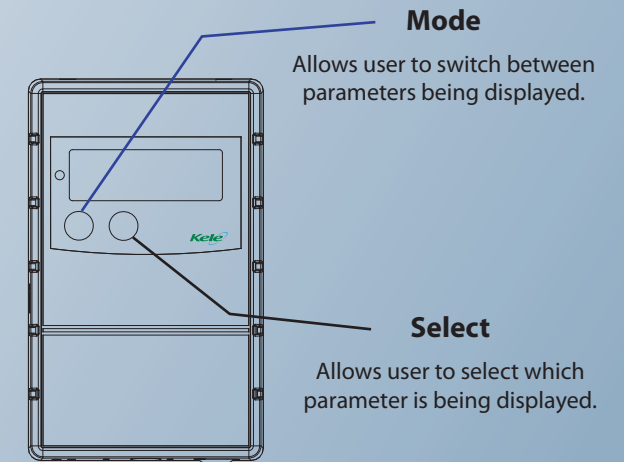| Analog Output Scaling			
Sensors		CO2 ppm	RH %
Current Output	4 mA	0	0
	12 mA	1000	50
	20 mA	2000	100
Voltage Output	0 Volts	0	0
	5 Volts	1000	50
	10 Volts	2000	100

Calibration-Kit

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

CO2 Calibration Procedure

Left Side

Bottom Side

Isometric View
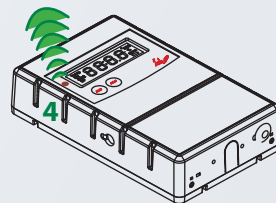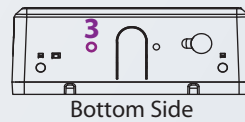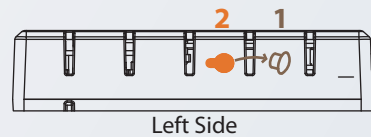
1. Temporarily remove dust cover from left side of enclosure cover.
2. Place 2000 PPM CO2 calibration gas tube in side port and slide onto the fitting inside. Turn on gas.
3. Allow calibration gas to flow for one minute, then use a 1/16" allen wrench (or equivalent) to depress switch (inside hole 3 at left) for 5 seconds. LED will blink yellow.
4. After **5 minutes** the LED will **blink green.** The calibration process is completed.
5. Press and hold switch (labeled 3 at left) to accept calibration. The LED will turn **solid green** after only a few seconds, indicating that calibration is complete.
6. At this point it is safe to turn off gas and remove gas tubing from calibration port.
7. When calibration is complete, replace dust cover on gas calibration port.

Liquid Crystal Display (if equipped)

Mode

Allows user to switch between parameters being displayed.

Select

Allows user to select which parameter is being displayed.

Models reporting only CO2 (with out RH option) will not be equipped with 'Mode' and 'Select' buttons.

Introduction

The KCO2 Series is a non-dispersive infrared analyzer for measuring environmental CO2 concentration in ventilation systems and indoor living spaces. Its measurement range of 0 - 2000 ppm (parts per million; 1000 ppm = 0.1%) covers the range required to monitor compliance with ASHRAE or other ventilation efficiency standards. The KCO2 comes configured for:

- Wall or duct-mounting;
- Voltage or 4-20mA outputs

Options include:
- No or NC relay;
- Liquid-Crystal Display (LCD);
- Alarm;
- RH sensor

A simple one-point calibration procedure and a built-in calibration port that requires no special fittings or adapters make the KCO2 simple to operate and maintain.

Displays and Indicators

The KCO2 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 display option adds a 4 digit liquid crystal display (LCD) to the front panel. The display shows the measured:
- CO2 concentration in parts per million (ppm)
- Relative Humidity in %

CARBON DIOXIDE SENSOR (CO2)	
Parameter	Value
Operating Principle	Non-dispersive infrared (NDIR)
Gas Sampling Method	Diffusion
Measurement Range	0-2000 ppm
Repeatability	$\pm$ 20 ppm CO2
Measurement Accuracy	$\pm$ 30 ppm $\pm$ 2% of reading
Recommended Calibration Interval	5 years
Warm Up Time	Less than 1 minute
Power Requirements	18 - 30 VDC or 18 - 28 Vrms AC
Operating Temperature Range	0 - 50 ^{0}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 $R_{LOOP} < 600 \, \Omega$
Calibration	ONE Point : Single-button calibration (Patented)
Dimensions	4.5 x 2.8 x 0.9 inches

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

Kele

KCO2 Series