CO/PRO®
Installation Guide

The latest installation guides can be found on the Resources page on the Respiro-USA.com website.

A. Included Parts
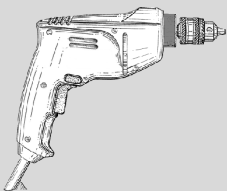

Mounting Screws

(2)

Parts shipped with the CO/PRO

CO/PRO

(1)

B. Necessary Tools—Not Included
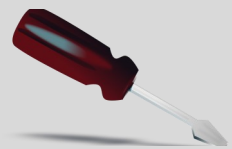

Drill

2" Step Bit
or Equivalent

1/4" Socket

Flat Head
Screwdriver

18-22 AWG 4-strand, 2-strand , or equivalent

The CO/PRO attaches to furnaces and water heaters and turns them off when 25 ppm of carbon monoxide (CO) is detected.

- There can be multiple sources for carbon monoxide inside a home. The CO/PRO is NOT a replacement for, nor does it supersede, a state's requirement for carbon monoxide detectors.

- The CO/PRO only monitors appliances for the presence of carbon monoxide (CO) gas to avoid hazardous build-up. It is not a life-safety device. The CO/PRO is not designed, certified, sold, or authorized in applications where failure of this device could result in personal injury or death.

- The CO/PRO is equipped with two sensors—one for measuring CO in the ambient air and one for measuring CO in the HVAC duct air. The CO/PRO tests the duct sensor daily to determine the end-of-life for both CO sensors and the product.

- Do NOT install in areas where there is turbulent or moving air as it may prevent CO from reaching the CO/PRO's sensors.

- Do not install in areas where the temperature is above 158F/70C or less than 68F/20C, or in very high humidity areas.

- The CO sensors are not replaceable and the entire unit should be replaced if a sensor fails.

- The CO/PRO must be mounted in the vertical orientation.

- The CO/PRO must be installed by a qualified and licensed electrician, HVAC, or plumbing professional. All wiring must comply with the National Electric Code (NEC) and local codes.

- Do NOT run wiring for the CO/PRO in the same conduit as AC power or with wiring used to supply highly inductive loads, such as motors, contractors, and relays.

- Proper supply voltage and wiring connections are important to a successful installation. Ignoring the directions may damage the product and void the warranty.

- The CO/PRO's connectors support Respiro recommendation of using twisted pair of at least 22AWG.

- CO is a deadly gas created by fossil fuel burning sources. The CO/PRO is not designed to detect smoke, fire, or any gas other than carbon monoxide.

- The CO/PRO monitors for the presence and concentration of carbon monoxide at 25 ppm (parts per million.)

- The CO/PRO must be installed at a minimum of 6 feet from the furnace to a location where the temperature in the ventilation is 158°F (70°C) or less. Failure to do so will void the warranty.

- Do not attempt to open, repair, or modify any portion of this device.

- The carbon monoxide sensor's useful lifespan has been rated up to 10 years. The actual lifespan of each sensor will vary by the environment which it operates in and can be impacted by temperature, humidity, dust, CO exposure, and other factors.

- As home/business air filtering systems vary, the CO/PRO should be checked periodically to ensure its air vents are free of dust.

- Each CO sensor has been calibrated at the factory. From 0—25ppm, the accuracy of the CO sensor is +/- 5ppm.

- This installation guide may be updated periodically. The latest guide can be found at www.Respiro-USA.com/resources.

- The type of furnace, it's rated CFM, the duct size and configuration, and the location of the CO/pro can affect CO detection times.
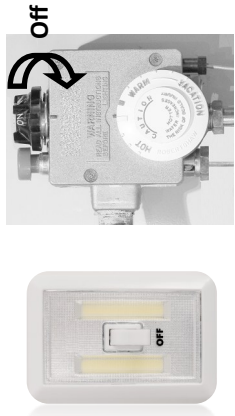
Warranty

The CO/PRO is warranted for one (1) year. The warranty is extended to two (2) years if the product is registered within thirty (30) days of purchase. A copy of the full warranty can be found at www.Respiro-USA.com.
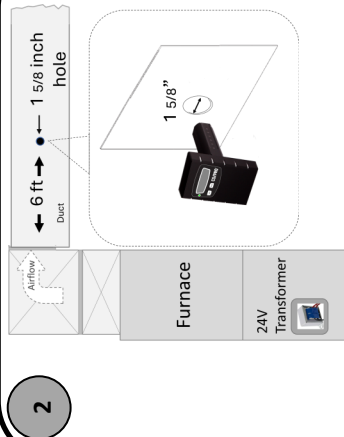
Product Registration

Product registration within thirty (30) days of installation is required for the two (2) warranty to be in effect. Not registering the device within thirty days of the installation date limits the product and sensor(s) warranty to one (1) year from the time of purchase. Register the CO/PRO by scanning the QR code on the inside of the cover or on the Respiro-USA.com website.
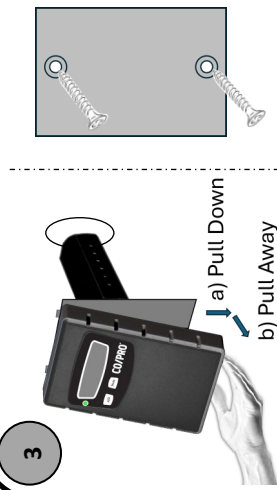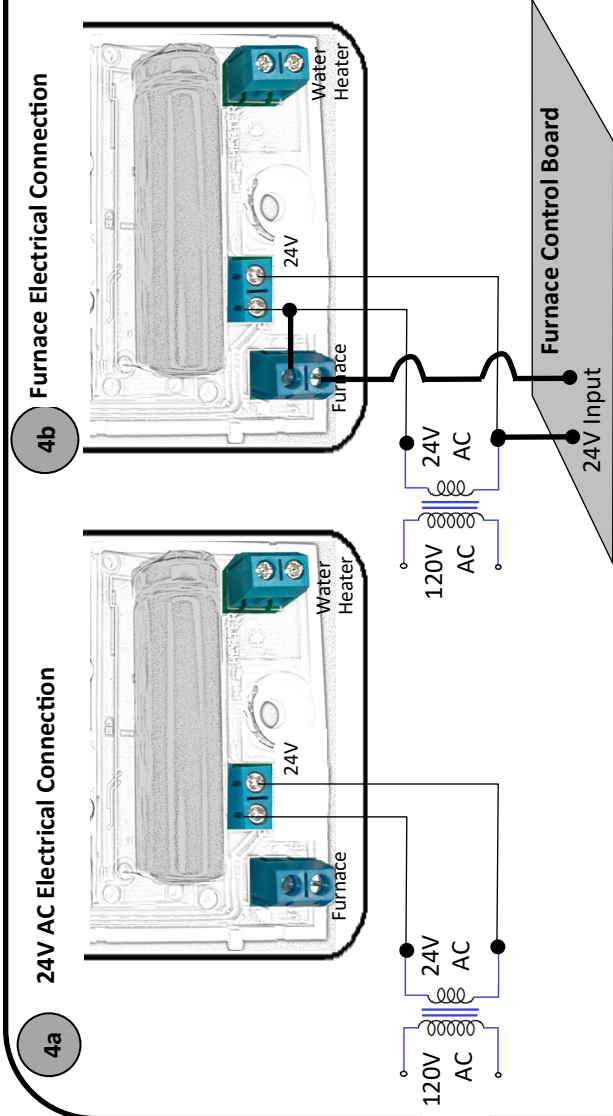
INSTALLATION GUIDE—FURNACE

4a 24V AC Electrical Connection

Water Heater
Furnace
24V
120V AC
24V AC

4b Furnace Electrical Connection

Water Heater
Furnace
24V
120V AC
24V AC
Furnace Control Board
24V Input

Wiring Diagram

4b

Water Heater
24V
Furnace

24V AC
Control Board

Step 4— Use an existing or new 120/24 VAC transformer to bring 24V (AC) to power the CO/PRO. On the 24V side of the transformer, cut one of the 24V power wires going to the control board and connect it to the Furnace connector.

Go to **Step 5.**

1

CAUTION

Off

OFF

Step 1—Turn off the power for all devices (furnace, boiler, water heater).

2

Airflow
Furnace
24V Transformer
Duct
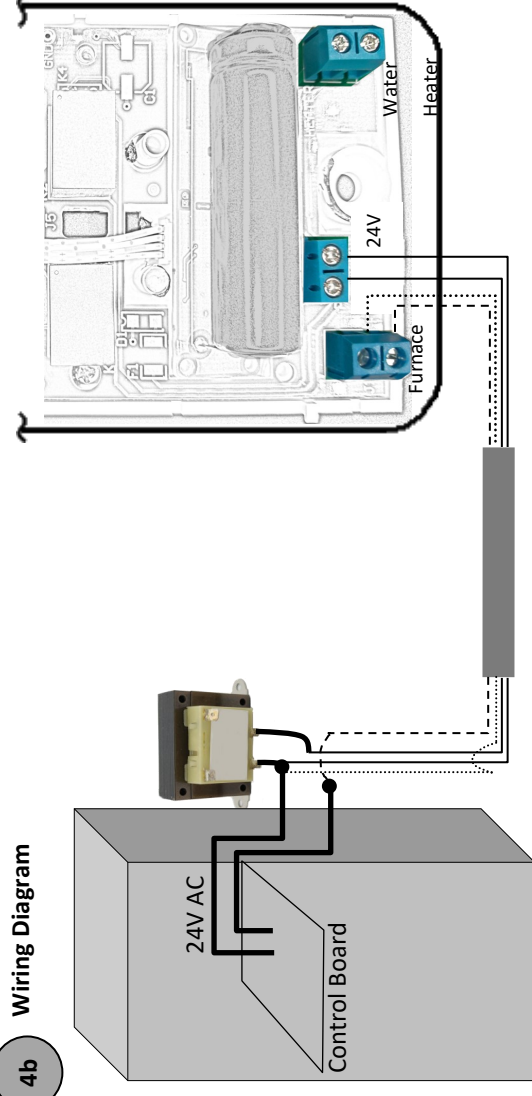← 6 ft →
← 1 5/8 inch hole
1 5/8"

Step 2—Drill a 1 5/8 inch hole in the ventilation 6ft from the furnace.

3

CO/PRO
a) Pull Down
b) Pull Away

Step 3—Remove the front cover to open the CO/PRO by pulling up from the bottom. Insert the duct tube into the new hole and mount the CO/PRO to the duct using the screws. Insert your wires through the two holes for connecting to the terminals.
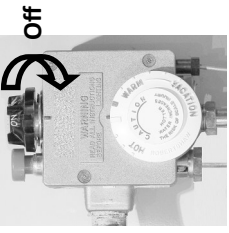
INSTALLATION GUIDE—WATER HEATER

4

Water Heater Connection

Water Heater

Furnace

24V

120V AC

24V AC

Splice into the Flame sensor High Temp Limit Wire

OR

Thermocouple Junction Block

Step 4 — Use an existing or new 120/24 VAC transformer to bring 24V (AC) to power the CO/PRO. Manual pilot water heaters require a thermocouple junction block (not included) be inserted between the thermocouple and the water heater's control box (see picture above) to connect to the CO/PRO. For automatic pilot water heaters, splice into the Flame Sensor High Temp wire and connect each end to the CO/PRO.

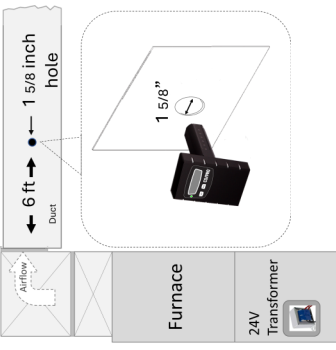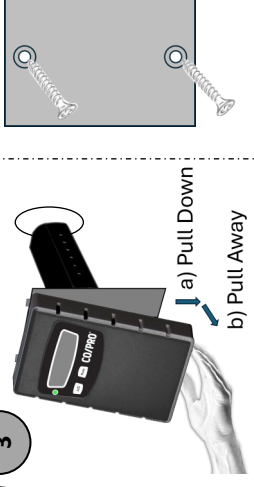Go to Step 5.

1

off

CAUTION

OFF

Step 1—Turn off the power for all devices (furnace, boiler, water heater).

2

Airflow

Furnace

Duct

24V Transformer

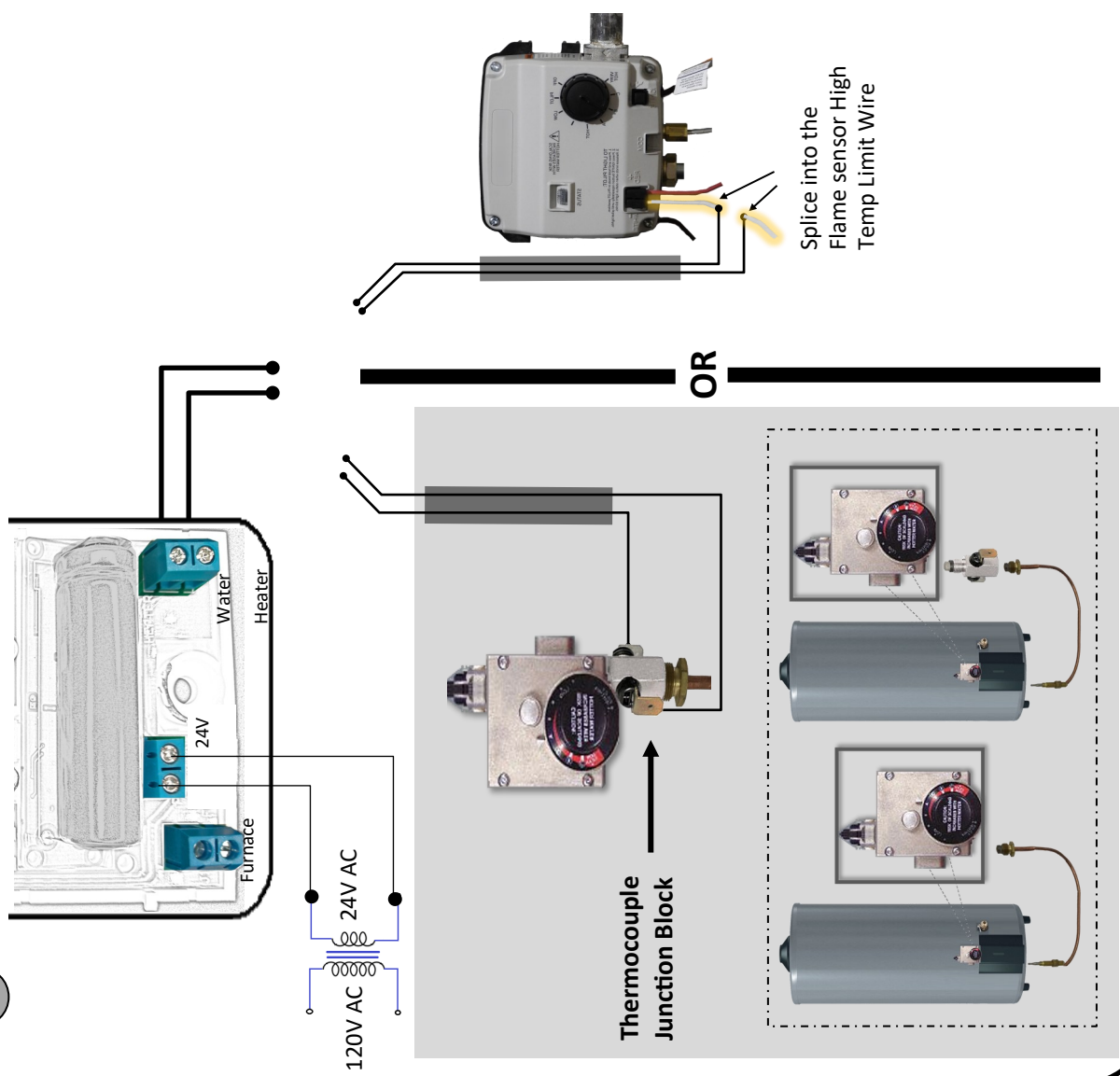6 ft — 1 5/8 inch hole

1 5/8"

Step 2—Drill a 1 5/8 inch hole in the ventilation 6ft from the furnace.

3

CO/PRO
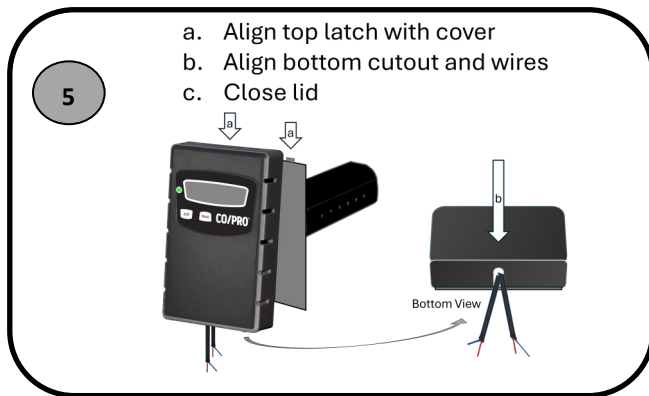
a) Pull Down
b) Pull Away

Step 3—Remove the front cover to open the CO/PRO by pulling up from the bottom. Insert the duct tube into the new hole and mount the CO/PRO to the duct using the screws. Insert your wires through the two holes for connecting to the terminals.
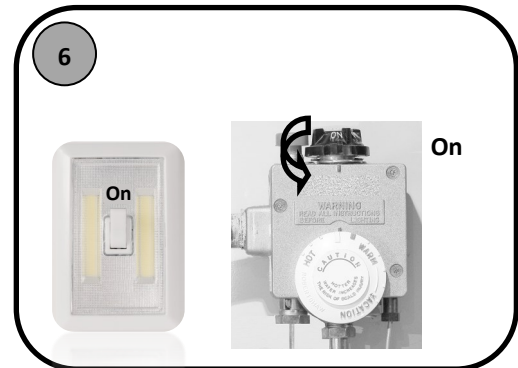
5
a. Align top latch with cover
b. Align bottom cutout and wires
c. Close lid

Bottom View

Step 5—After putting the cover back on and securing the lid to the base, turn the power back on to the furnace and water heater and ensure all devices are operating properly.
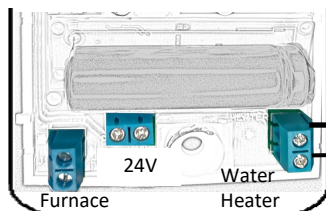

6

On

On

Step 6—Turn power on for all devices.

7

$A:03$ 126

Press "Mute" For 6 Seconds to start or stop TEST MODE.
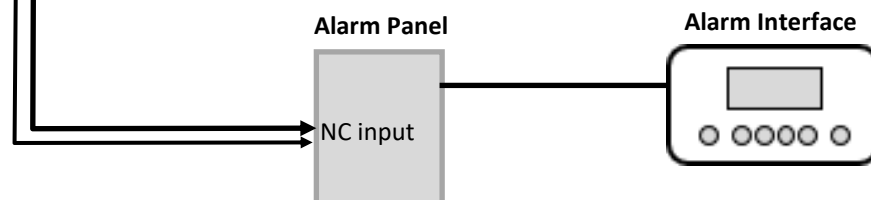
A/D   Mute   **CO/PRO®**

Step 7—The CO/PRO will take approximately 1 minute to go through it's warm-up process. Once the device is ready, press the "Mute" button for greater than 6 seconds to activate the test mode. Verify that the alarm is working, the red light is flashing, and that all connected devices (furnace and water heater) were powered off by the CO/PRO. When the CO/PRO's operation has been validated, press the "Mute" button for greater than 6 seconds to put the CO/PRO into it's ready state.

Connecting CO/PRO to an Alarm System

Water Heater Connection

24V   Water
Furnace   Heater

When using the CO/PRO to only monitor the supply air from a furnace, the "Water Heater" connector on the CO/PRO can be connected to a an alarm panel that accepts a normally closed (NC) contact. In this configuration, the CO/PRO will "open" the contact when 25 ppm of CO is detected, thereby providing an alert to CO in the ambient air. When the CO level decreases to 15 ppm or less, the alarm will be cleared and the CO/PRO's contact will return to a normally closed state (NC).

Alarm Panel

Alarm Interface

NC input

LED, Display, and Button Functions

Display Position 1

𝐀 = **A**mbient sensor   d = **d**uct sensor

LED

Display Position 2

▢ = current CO ppm   **P** = Peak CO ppm
(Blank)

Function Buttons
A/D = Ambient/duct select
Mute = Mute alarm, self test

dP:03 ̇126

Display Positions 3 & 4
= CO Level (ppm), range 0-99

Mute Indicator

▢ = Audible alarm is active
(Blank)

• = Audible alarm is has been muted

Small Display
= current temperature from the selected sensor (°F)

A/D   Mute   **CO/PRO®**

Button Function Description

A/D	Single press (< 1 sec)	Display changes from displaying the current AMBIENT (A) CO sensor's reading to the current DUCT (D) CO sensor's reading.
A/D	Single press (> 3 sec)	Changes the main display from showing the current instantaneous reading of the selected sensor to displaying its "Peak" reading previously recorded since the last power cycle, reset, or when the last peak reading was cleared. The letter "P" will be displayed in the upper right hand screen. If the A/D button is pressed again for > 3 seconds, then the unit will revert back to displaying the sensors current CO value.
A/D	Single press (> 6 sec)	Clears the peak value for the selected sensor.
Mute	Single press (<1 sec)	Mutes the audible alarm until a power cycle, reset, or until the CO level drops into a non-alarm condition ($\leq$15 ppm) then returns to an alarm condition (>25 ppm.
Mute	Single press (>6 sec)	Initiate Test Mode. Used for verifying wiring connections and device functions. Pressing Mute for > 6 seconds takes the device out of Test Mode.
A/D + Mute	Simultaneous (>3 sec)	Pressing both buttons simultaneously for > 3 seconds causes the device to reset, clears the peak values, and puts the relays back into the CLOSED state**.**

LED Color Description

Green (Solid)	Device passed self test and is operational
Green (Flashing)	Device is in the process of a self-test / CO sensor test
Yellow (Solid)	The device is in an alarm state and 15 ppm or less of CO has been detected by the alarming sensor. The device is in the process of evaluating moving to a non-alarm state.
Yellow (Flashing)	The device is in a non-alarm state a CO sensor(s) detected 25 ppm or greater of CO gas. The device is in the process of evaluating if it will change to an alarm state.
Alternate Yellow and Green (Flashing)	The device is in a non-alarm state but was previously in an alarm state. Call your HVAC company as soon as possible.
Alternate Yellow and Red (Flashing)	The device is in an alarm state and was previously in an alarm state. Call your HVAC company as soon as possible.
Red (Single Flashes)	The device is in an alarm state. 25 ppm or greater of CO was detected. The furnace or the furnace and water heater have been turned off. Call your HVAC company as soon as possible.
Red (Three Flashes)	A CO sensor failure has caused the device to fail. Call your HVAC company as soon as possible.

Sensor Failure/Error Codes

AbAd	The **A**mbient sensor is **bAd** (failed). Your HVAC company should be contacted as soon as possible
dbAd	The **d**uct sensor is **bAd** (failed). Your HVAC company should be contacted as soon as possible