

# CO-USB-A / CO-USB-C

## Cockpit Carbon Monoxide Detector — User Manual

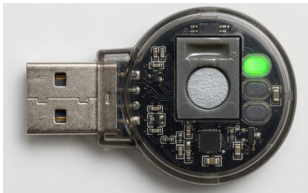
Firmware FW022 · Manual Rev G · Radiant Instruments

Part #s RI-2026-10-COUSBA & RI-2026-11-COUSBC

### About your detector

CO-USB-A and CO-USB-C are small, always-on carbon monoxide detectors powered from your aircraft's USB port. There are no batteries to replace, nothing to install, and no display demanding attention — just three lights: green, yellow, and red. Plug it in, leave it in the cockpit, and let it watch the air you cannot see.

Every unit is individually calibrated at the factory: its own clean-air zero, its own measured response to 100 ppm reference gas, and its own calibration at cool and warm temperatures — so its particular temperature response can be compensated during operation.



CO-USB-A



CO-USB-C

Illustrations — final product appearance may differ.

### Getting started

- CO-USB-A plugs directly into any powered USB-A port. No cable is included or required.
- CO-USB-C includes a USB-C-to-A cable so it can run from any powered USB-A port — we believe this covers the majority of installations. If your only outlet is USB-C, you may need a C-to-C cable (not included).
- The indicator lights are visible on BOTH sides of the case, so the detector can be read in any orientation. Position it anywhere it falls in your normal scan.
- A 1-inch round hook-and-loop pad is included, so the detector can be mounted on any convenient flat surface.
- All three colors flash together for about a second — that's your proof at every plug-in that all three lights work.
- For the next three minutes the lights cycle calmly through green, yellow, and red while the sensor warms up and the detector re-zeros itself against cabin air. Red CO warnings remain active throughout startup and override the color cycle.
- Steady green means the self-check passed and the detector is watching.

The three-minute self-check repeats at every power-on. For the cleanest startup zero, power up before engine start when practical. The detector checks each new zero against its factory calibration and rejects one that is materially higher than expected.

### Lights during normal operation

| Lights                                            | Meaning    | Details / What to do                                                                                                                                                                                        |
|---------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ● GREEN — steady                                  | Ready      | CO below the advisory level. Normal monitoring. Brightness automatically dims at night and rises in daylight.                                                                                               |
| ● GREEN — brief dip, every 10 s                   | Self-check | Normal. The green light softly dims and briefly goes dark about every ten seconds while the detector checks cockpit lighting — and confirms it's alive and watching. This never interrupts a CO indication. |
| ● GREEN — steady + ● YELLOW — short blink         | Advisory   | Low-level CO present ( $\geq \sim 20$ ppm). Heightened awareness — watch for change and think about likely sources.                                                                                         |
| ● YELLOW — steady                                 | Caution    | Elevated CO ( $\geq \sim 35$ ppm). Identify and reduce the source — cabin heat, ventilation, seals.                                                                                                         |
| ● RED — short blink once per second               | Warning    | Rising CO ( $\geq \sim 50$ ppm). Increase fresh-air ventilation and investigate now. RED always full brightness.                                                                                            |
| ● RED — mostly on, brief dark dip once per second | Urgent     | High CO ( $\geq \sim 100$ ppm). Maximum fresh air, oxygen if available, land per your CO checklist. RED always full brightness.                                                                             |
| ● RED — steady + ● YELLOW — two quick blips       | Critical   | Very high CO ( $\geq \sim 200$ ppm). Immediate action — oxygen, ventilate, land as soon as possible. RED always full brightness.                                                                            |

*Threshold values are approximate trigger points; the detector uses brief persistence and hysteresis so momentary blips don't cause alarm chatter, and alarms step down only after readings genuinely fall. Alarm reds are always full brightness, day or night. Once an escalation is confirmed, the new indication appears immediately; recoveries fade calmly back toward green.*

## Lights at startup and special conditions

| Lights                                                     | Meaning                      | Details / What to do                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ● GREEN + ● YELLOW + ● RED — all three together, ~1 second | <b>Power-on</b>              | All three colors show briefly at plug-in: proof that every light works.                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| ● GREEN + ● YELLOW + ● RED — slow color cycle              | <b>Self-check (3 min)</b>    | A calm green → yellow → red color cycle for three minutes after every power-on while the sensor stabilizes and the detector re-zeros itself. Warning-level and higher CO alarms override the startup cycle.                                                                                                                                                                                                                                                                                                       |
| ● YELLOW — blinking, twice per second                      | <b>Too hot to self-check</b> | The detector was too warm to establish a reliable startup zero. The detector is NOT ready for normal monitoring while this pattern is displayed — however, Warning-level and higher CO alarms remain active and will override the blinking-yellow indication with the normal Warning, Urgent, or Critical alarm pattern. After cooling the cabin (vents, air conditioning, shade), power-cycle the detector; in clean air, a successful restart ends with steady green. This does not indicate a hardware defect. |
| ● GREEN + ● YELLOW + ● RED — all three blinking together   | <b>Self-check failed</b>     | The detector could not verify its factory calibration or establish an acceptable startup zero. Unplug and replug once; if the pattern repeats after restarting in known clean air and a moderate-temperature cabin, contact Radiant Instruments.                                                                                                                                                                                                                                                                  |
| ● YELLOW + ● RED — rapid alternating                       | <b>Sensor fault</b>          | The internal sensor stopped responding. If communication recovers, the indication clears automatically after about 10 seconds of healthy sensor data; if it persists, unplug/replug, and if it still persists, contact Radiant Instruments.                                                                                                                                                                                                                                                                       |

**Do not rely on the detector for CO warning while the Self-check failed or Sensor fault pattern is displayed.**

*A quick memory aid: steady yellow means CO is elevated; blinking yellow means the cabin was too hot for the startup self-check — cool the cabin and power-cycle.*

## Responding to a CO indication

- Advisory: heightened awareness. Watch the trend and think about likely sources — cabin heat configuration, exhaust, doors and windows.
- Caution: identify and reduce the source — cabin heat off or reconfigured, fresh-air vents open, check door and window seals.
- Warning: treat it as real. Maximum fresh air, cabin heat off, and investigate immediately.
- Urgent / Critical: oxygen if available, maximum ventilation, land per your emergency checklist. Carbon monoxide impairment is cumulative and not always perceptible.

This detector is a supplemental awareness device. It is not a substitute for your aircraft's certified equipment, your emergency procedures, or sound judgment.

## Care and notes

- Power: 5 V from the USB port; approximately 20 mA typical. When aircraft power is off, the detector is off.
- Operating environment: 14 °F to 104 °F (–10 °C to +40 °C), 15–90% relative humidity, non-condensing.
- Storage: –20 °C to +60 °C (–4 °F to 140 °F).
- Sensor warranty: the CO sensing element is warranted for 3 years from purchase.
- Leave the unit plugged in and unobstructed; don't cover the small vents in the housing.
- Cleaning: wipe with a dry or slightly damp cloth. No solvents.
- If any fault indication persists across power cycles in known clean air and a moderate-temperature cabin, contact Radiant Instruments support.

## Disclaimers

Products from Radiant Technology are not designed to be used in applications where their failure would endanger safe flight or human life in any way. They are intended solely for use in VFR conditions. They are not certified to meet any Technical Standard Order and are not produced under a Parts Manufacturing Authority (TSO / PMA). As a result, if permanently installed in the aircraft, they are suitable only for use in experimental and ultralight aircraft, and in Light Sport Aircraft, if meeting the requirements of the respective manufacturer. Specifically not for use as a primary display instrument in certified aircraft. An AOA indicator is an aid to stall awareness, not a replacement for it; always fly the aircraft within its published limitations.

## **Warranty**

Your new Radiant Technology instrument carries a three-year warranty from the invoice date. Please contact us at [support@radiantinstruments.com](mailto:support@radiantinstruments.com) should your product need warranty service. There is an additional charge for international warranty service.

## **Return / Refund Information**

Must be returned in new, uninstalled, resalable condition within 60 days after receipt. Ship to Radiant Technology, PO Box 20690, Wichita KS 67208.