

# GD-40 Installation/Operation Manual

**The GD-40 is not approved for installation in certified aircraft.**

## **Installation:**

### **Mechanical**

Mount the GD-40 in a non-dusty area in the cockpit. Mount such that there is no obstruction to the fan. Possible locations include bulkheads behind the instrument panel and side panels.

Mount the supplied Bi-Color LED and button next to each other in a visible location on the instrument panel.

### **Electrical**

**Configuring your Installation:** The GD-40 is capable of producing warnings via LED illumination, Audio warning, EFIS communications and a discrete relay switch. Any combination of these external connections may be made as desired for your installation. At a minimum the LED and button should be installed.

**V+** (power) 12-28 Volts DC, Connect to the avionics bus via a 1 Amp fuse.

**GND** (Ground) Two identical grounds are provided. One should be connected to the aircraft ground. The other may be used for the LED connection, audio shield, button ground and/or Serial data cable shield. It is acceptable to connect more than one wire to a ground terminal.

**WARNING!! Do NOT connect the LED to 12V. Damage will occur.**

**LED1** (Red LED) Connect to the red wire on the supplied LED

**LED2** (Green LED) Connect to green wire on the supplied LED

(connect LED the black wire to ground **GND**)

Use 22-24AWG shielded wire using the shield as the ground connection. Using shielded wire helps prevent noise in the audio signal.

**RX** (Serial Receive) Connect to EFIS serial port "Transmit".

**TX** (Serial Transmit) Connect to EFIS serial port "Receive".

(Use a two conductor shielded wire for the data connection. Connect one end of the shield to ground)

**AUD** (audio out) Connect to an unswitched audio input in on your radio or intercom. Use 22-24AWG shielded wire. Connect one end of the shield to ground. If your radio or audio panel does not have an unswitched audio input you will need to purchase an audio mixer. We suggest our AP-60 Mixer.

**BUT** (button) Connect to one terminal of the supplied button. Connect the other button terminal to ground at the GD-40. Use 22-24AWG shielded wire using the shield as the ground connection. Using shielded wire helps prevent noise in the audio signal.

**RLY** (Relay) This terminal connects to ground (is pulled low) when a CO alarm is present. Connect this to an EFIS "switch input" or it can complete the circuit for an external warning lamp. Do not connect this terminal to 12-28 Volts

## **Setup:**

Once you have connected the detector, perform the following tests to verify your installation.

**Test 1:** PRESS and HOLD the button, RELEASE the button when the LED begins to flash RED and GREEN.

Confirm the following occurs:

- The Red LED should flash for 20 seconds
- "Danger Carbon Monoxide" will be played over the audio system
- A connected EFIS should report a CO warning and a level of 500PPM for 20 seconds.
- The "RLY" connection will be connected to ground (pulled low)

**Test 2:** PRESS and RELEASE the button to perform the following tests:

- The green LED should flash several times
- If Test 1 is in progress, the EFIS warning will be cancelled and the RLY switch connection will be opened

## **Volume Control:**

An audio volume control is located next to the terminal strip. Be careful not to force the potentiometer past its limits, it is delicate.

## **Configuring your EFIS:**

Configure the EFIS Serial port connected to the GD-40 for CO detector data.

## **Operation:**

Upon power up the unit performs a self test and will play the following audio alert, "Carbon Monoxide Detector Test OK". The Green LED will flash then extinguish. After two minutes of stabilization, the Green LED should illuminate steadily.

### **CO Alerts:**

- Low: 50 to 100 PPM - Flashing green LED, Voice Alert: "Caution, Carbon Monoxide", Relay connected to ground
- Medium: 100 to 400 PPM - Steady Red LED, Voice Alert: "Warning, Carbon Monoxide", Relay connected to ground
- High: Greater than 400 PPM - Flashing Red LED, Voice Alert: "Danger, Carbon Monoxide", Relay connected to ground

Alerts for lower concentrations of CO are delayed. As the concentration increases to 400PPM alerts occur more quickly.

To acknowledge an alert PRESS the button. The following acknowledgement steps occur:

- Prevents further audio alerts
- Opens the Relay
- Clears the alert signal sent to the EFIS
- The LED will flash green then continue to display alert status

NOTE: The Detector will continue to send the CO concentration to the EFIS for pilot monitoring. The alert condition is automatically cleared when the concentration drops below 50PPM.

Some EFIS manufacturers enable the EFIS to send an acknowledgement command to the Detector by pressing a button on the EFIS. An EFIS acknowledgement performs the same steps as above.

### **CO Alert Procedures:**

- Turn off the cabin heat
- Open fresh air vents and windows
- Land and correct the source of CO

### **Altitude Alerts:**

The following altitude Alerts are provided:

- 10,000': Voice Alert: "Cabin Altitude", Momentary EFIS altitude alert
- 12,500': Voice Alert: "Cabin Altitude", Momentary EFIS altitude alert
- 14,000': Voice Alert: "Cabin Altitude", Continuous EFIS altitude alert

The altitude alert will reset below 9500'

The altitude alert may be acknowledged and cancelled by PRESSING the button.

## **Maintenance:**

The sensor in the GD-40 has a demonstrated service life of more than 10 years. At power up and periodically during operation, the detector performs a self test to confirm its integrity. If a problem is detected, "Carbon Monoxide Detector Test Fail" will be played via the audio system. There are two failure modes that can occur after power up: 1) The LED will flash RED and GREEN for a sensor failure or 2) The LED flash RED for an internal memory failure. In the case of an internal memory failure, the unit will operate normally, but with less accuracy.

Replacement of the sensor and recalibration of the unit must be performed at the factory. Contact us to make arrangements for sensor replacement and recalibration service.

A date code is printed on the sticker on the outside of the unit. For four digit codes, the first number in the code is the year of manufacture of the unit the second three numbers are the day of the year. Example "1302" translates to the 302<sup>nd</sup> day of 2011. For five digit date codes the first two numbers are the year and the second three are the day of the year.

## **Specifications:**

**Input Voltage:** 12-28 Volts DC

**Dimensions:** 4.7" X 3.1" X 1.0"

**Weight:** 4.1 oz.

Altitude Compensated to 25000' Cabin Altitude

Detects as low as 10 PPM CO Concentration



**Need Help?**

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or call (831) 325-3131