



Quick Reference Guide Operation of the GD-70D

Rev. 5-17-11

Perform all zeroing and calibrations on the GD-70D in a known fresh air area.

Note: The GD-70D gas transmitter is a generic transmitter that can take a variety of different sensor units including electrochemical sensors (ESU), Pyrolysis-particle type (SSU), Semiconductor type (SGU) and Galvanic cell type (OSU). Consult the GD-70D manual for additional information.

1. Installing the sensor

- a. Remove sensor from packaging leaving sensor unit intact. (do not open up the sensor unit)
- b. Push the two release tabs on the top of the main unit to open the front cover.
- c. Attach sensor to main unit by pushing it in locking the sensor in place.
- d. Once sensor is secured, close the front cover pressing firmly until the cover clicks into place.

2. Turning ON / OFF the GD-70D

- a. Turn the GD-70D upside down so inlet and outlet fittings are facing up (if possible). If not, then you will need to look at the bottom of the GD-70D.
- b. Swing the white access door to the left to gain access to the POWER switch.
- c. "O" is OFF, "I" is ON.
- d. Move the POWER switch to the desired position.
- e. Swing the white access door back covering the POWER switch.
- f. Allow the GD-70D to warm up sufficiently before use.

3. Changing Sensor Type

- a. The GD-70D will automatically recognize the sensor unit when the sensor is replaced or the specifications have changed. When a sensor with a different serial number or with a different principle or specification is attached, the GD-70D will display one of the following messages:
 - i. C-01 CHG UNIT: This message indicates that the sensor unit has been replaced with the same type (principle/type/range etc.). Press and hold the MODE button to acknowledge the new sensor and start up the unit.
 - ii. C-02 CHG SPEC: This message is displayed if a sensor unit with a different specification (principle/type/range etc.) is attached. Press and hold the MODE button to acknowledge the new sensor unit

with new specifications and to start up the unit. Instrument will boot up and indicate 1-1 ZERO Press the SET button, then press the SET button again to ZERO the sensor. The GD-70D will indicate ZERO OK and revert back to menu 1-1. Press and hold the MODE button to return to normal operation.

- iii. Note: Bump test or calibrate sensor unit after replacement is recommended to confirm operation.

4. User Mode

- a. Press the MODE key for three seconds
- b. Menu 1-1 ZERO will be displayed
 - i. Press the SET key to enter this function
 - ii. The current zero value will be displayed (ZERO SET)
 - iii. Press the SET key to perform the zero adjustment
 - iv. The display will indicate zero reading and indicate ZERO OK if adjustment can be made. If not, ZERO NG will be displayed.
 - v. The GD-70D will then return to menu 1-1 ZERO automatically
 - vi. Press the UP key to move to the next menu
- c. Menu 1-2 CONFIRM will be displayed
 - i. Press the SET key to enter this function
 - ii. First alarm point will be displayed. Example: 5.0 ppm AL 1
 - iii. Use the UP arrow to scroll to the second alarm point. Example 10.0 ppm AL 2
 - iv. Press the UP arrow to view Alarm Delay in seconds
 - v. Press the UP arrow to view Zero Suppression Value. Example: 0.9 ppm SUPPRESS
 - vi. Press the UP arrow to view Zero Follower ON/OFF display (if ESU or SSU sensors are installed). Example: ON ZERO F
 - vii. Press the UP arrow to view Sensitivity Correction ON/OFF display (if ESU sensor installed). Example: OFF S ASSIST.
 - viii. Using the UP or DOWN arrows will scroll through the 1-2 menus.
 - ix. Press the MODE key to return to menu 1-2.
 - x. Press the UP key to move to the next menu
- d. Menu 1-3 FLOW
 - i. Press the SET key to view flow rate in liters/min. Example: 0.50 L/M
 - ii. Press the MODE key to move back to menu 1-3 FLOW.
 - iii. Press the UP key to move to the next menu.
- e. Menu 1-4 ADDRESS
 - i. Press the SET key to view detector's network address. Example: 01 ADDRESS
 - ii. Press the UP key to move to the next menu
 - iii. **Note: Must be set up for digital communications.**
- f. Menu 1-5 70D VER
 - i. Press the SET key to view program version of the main unit. Example: 03647 4E74
 - ii. Press the MODE key to return to menu 1-5
 - iii. Press the UP key to move to the next menu
- g. Menu 1-6 UNIT VER

- i. Press the SET key to view the program version of the installed sensor unit.
 - ii. Press the MODE key to return to menu 1-6
 - iii. Press the UP key to move to the next menu
- h. Menu 1-7 NET VER
 - i. Press the SET key to view the program version of the communication function (NT specification)
 - ii. **Must be set up for digital communications.**
 - iii. Press the UP key to move to the next menu
- i. Menu 1-8 M MODE
 - i. Press the SET key once;
 - ii. Then press and hold the SET key for three seconds to enter into MAINTENANCE MODE.
 - iii. Pressing the UP key will bring you back to Menu 1-1 ZERO; or press and hold the MODE key to return to normal operation. **If you fail to press the MODE key to return the monitor to normal operation, the unit will automatically return to normal mode in 10 hours.**

5. Maintenance Mode

- a. Gas introduction display. When you enter Maintenance Mode, the first menu item is 2.0 GAS TEST.
 - i. If SET key is pressed display will flash GAS TEST alternating with GAS type.
 - ii. Press the MODE button to return to menu 2-0.
 - iii. Press the UP key to move the next menu.
- b. Menu 2-1 ZERO
 - i. Press the SET key to enter ZERO adjustment mode.
 - ii. Press the SET key again to zero the detector. When completed ZERO OK will be displayed briefly then display will return to menu 2-1.
 - iii. Press the UP key to move to the next menu.
- c. Menu 2-2 SPAN
 - i. Press the SET key to enter this mode
 - ii. Connect calibration gas to transmitter and allow reading to stabilize or a maximum of 2 minutes.
 - iii. Press the SET key
 - iv. The display will indicate actual gas reading and SPAN VAL
 - v. Use the UP or DOWN keys to set reading to gas value as indicated on the cylinder.
 - vi. Press the SET key to adjust. If adjustment is successful, the display will indicate SPAN OK, then SAVE Y/N?
 - vii. Press the SET key to record the adjustment result.
 - viii. Display will then indicate SPAN END.
 - ix. Display will return to 2-2 SPAN. Remove the test gas from the inlet tube.
 - x. If the span adjustment fails, the display will indicate SPAN NG. Check span gas concentration and/or replace sensor if needed.
 - xi. Press the UP key to move to the next menu.

- d. Menu 2-3 LAST CAL
 - i. Press the SET key will show the date and time of the last calibration.
 - ii. Press the MODE key to return to menu 2-3.
 - iii. Press the UP key to move to the next menu.
- e. Menu 2-4 BIAS
 - i. Press the SET key to display the bias voltage. Example: 250 mV
 - ii. Press the MODE key to return to menu 2-4.
 - iii. Press the UP key to move to the next menu.
- f. Menu 2-5 DEF FLOW
 - i. This is normally not used unless the flow sensor has been replaced.
 - ii. Press the UP key to move to the next menu.
- g. Menu 2-6 FLOW
 - i. Press the SET key to display flow rate in LPM. Example: 34% 0.50 L/M.
 - ii. Press the MODE key to return to menu 2-6.
 - iii. Press the UP key to move to the next menu.
- h. Menu 2-7 TEMP
 - i. Press the SET key to display the temperature of the detector in degrees C. Example: 25.4 Deg. C.
 - ii. Press the UP key to move to the next menu.
- i. Menu 2-8 WARM TIME
 - i. Press the SET key to display the warmup completion date/time for semiconductor type sensors. (Must have MOS sensor in unit to work)
 - ii. Press the UP key to move to the next menu
- j. Menu 2-9 SETTING1
 - i. Press the SET button.
 - ii. The display will indicate SET 0 INHIBIT.
 - iii. OFF INHIBIT will be displayed. Press the UP or DOWN button to toggle ON INHIBIT or OFF INHIBIT.
 - 1. This function enables or disables the alarm function when the detector is in normal operation.
 - iv. Press the SET key to return to SET 0 INHIBIT.
 - v. Press the UP key to move to the next menu.
 - vi. SET 1.ALM P
 - 1. Press the SET key enter this menu.
 - 2. Press the UP or DOWN key to set the alarm point for the first alarm. Example: 25.0 ppm AL 1
 - 3. Press the SET button to move to alarm two.
 - 4. Use the UP or DOWN keys to set the alarm two set point. Example: 50 ppm AL 2.
 - 5. Press the SET key to return to SET 1.ALM P menu.
 - 6. Press the UP key to move to the next menu.
 - vii. SET 2 ALM DLY
 - 1. Press the SET key to see the alarm delay. Example: 2 (SEC).

2. Use the UP or DOWN key to adjust the alarm delay.
 3. Press the SET button to return to SET 2 ALM DLY.
 4. Press the UP button to move to the next menu.
- viii. SET 3 MAINT
1. Press the SET button to enter this mode.
 2. This is used to stop the pump when transmitter is in operation in order to replace pump assembly.
 3. Press the SET key again to return to SET 3 MAINT menu.
 4. Press the UP key to move to the next menu.
- ix. SET 4 F TEST (Fault alarm test)
1. Press the SET button to enter this mode. SET 4 F TEST will be displayed.
 2. Press the UP or DOWN keys to select OFF F TEST or ON F TEST.
 3. Press SET key to activate fault alarm.
 4. Press the UP key to select OFF F TEST then press the SET key to disable the fault test.
 5. Press the SET key again to deactivate the fault alarm
 6. Press the MODE key to cancel this menu and return to SET 4 F TEST.
 7. Press the MODE key to return to menu 2-9 SETTING.
 8. Press the UP key to move to the next menu.
- k. 2-10 SETTING2
- i. Press the SET key to enter this mode. The display will indicate SET 0 ADDRESS.
 - ii. Press the SET key enter. (Note: Needs to be set up for digital communications)
 - iii. Press the UP key to move to the next menu.
 - iv. SET 1 DAY TIME
 1. Press the SET key to enter this mode. Display will indicate the following: TIME, YEAR, MONTH, DAY.
 2. Press the SET key to select the YEAR. Use the UP or DOWN keys to set the correct YEAR. Press the SET key to move to month.
 3. Use the UP or DOWN keys to select the correct MONTH. Press the SET key to move to DAY.
 4. Use the UP or DOWN keys to select the correct DAY. Press the SET key to move to HOURS.
 5. Use the UP or DOWN keys to set the proper HOURS. Press the SET key to move to MINUTES.
 6. USE the UP or DOWN keys to set the proper MINUTES then press the SET key. The display will revert to menu SET 1 DAY TIME.
 7. Press the UP key to move to the next menu.
 - v. SET 2 SUPPRESS
 1. Press the SET key to enter this mode.
 2. The display will indicate current zero suppression. Example: 4.5 ppm.

3. Use the UP or DOWN keys to set the zero suppression desired.
 4. Press the SET button when completed.
 5. Display will revert to SET 2 SUPPRESS.
 6. Press the UP key to move to the next menu item.
- vi. SET 3 SUP TYPE
1. Press the SET key to enter.
 2. You can select CUT or SLOPE. If CUT is selected, values that exceed the suppression are directly displayed. When SLOPE is selected, values that exceed suppression are slowly displayed.
 3. Once either CUT or SLOPE is selected press the SET key to return to menu SET 3 SUP TYPE.
 4. Press the UP key to move to the next menu.
- vii. SET 4 TEST RELY
1. Press the SET key to enter this mode.
 2. This mode allows you to set the contact activation for an alarm test. Select either ON or OFF and then press the SET key to confirm the selection. When ON is selected the contact can be activated even during an alarm test.
 3. Display will indicate OFF TEST RLY.
 4. Push the UP button to select ON TEST RLY then press the SET key to return you to menu SET 4 TEST RLY.
 5. Press the UP key to move to the next menu.
- viii. SET 5 TEST 4-20
1. Press the SET key to enter this mode.
 2. This mode sets the external output for an alarm test. Select either ON or OFF and then press the SET key to confirm. When ON is selected, the external output is active even during an alarm test. [Default setting is ON.](#)
 3. Press the set key to return to menu SET 5 4-20.
 4. Press the UP key to move to the next menu.
- ix. SET 6 RELY PTRN
1. Press the SET key to enter this mode.
 2. The display will indicate nd AL 1 RLY (Energized Relays)
 3. Pressing the UP button will select nE or (Non-energized Relays) [Default is nd.](#)
 4. Pressing the SET key will move to AL2 RLY
 5. Pressing the SET key will move to FLT RLY
 6. Use the UP or DOWN keys to set the alarm logic required.
 7. Press the SET key will return you to menu SET 6 ALY PTRN.
 8. Press the UP button to move to the next menu item.
- x. SET 7 ALM TYPE
1. Press the SET key to enter this menu.
 2. [Note: This can only be used with an OSU galvanic O2 sensor.](#)

3. You can select L-LL (two falling alarms), LH (one falling and one rising alarm) or H-HH (two rising alarms) as needed for oxygen.
4. Press the UP key to move you to the next menu item.
- xii. SET 9 AL LIMIT
 1. Press the SET key to enter this menu.
 2. The display will indicate on AL LIMIT.
 3. Pressing the UP or DOWN keys can toggle this feature either on or off.
 4. Press the SET key to return to menu SET 9 AL LIMIT.
 5. Press the UP key to move to the next menu.
- xiii. SET 10 FLT PTRN
 1. Press the SET key to enter this menu.
 2. The display will indicate nL FLT PTRN (default setting).
 3. Pressing the UP or DOWN key will toggle between nL (non latching) and L (latching).
 4. Press the SET key to return to menu SET 10 FLT PTRN.
 5. Press the UP key to move to the next menu item.
- xiv. SET 11 AT FLOW
 1. Press the SET key to enter this mode.
 2. Pressing the UP or DOWN keys will toggle between on and oFF. On is the default setting.
 3. Press the SET key to return you to menu SET 11 AT FLOW.
 4. Press the UP key to move to the next menu item.
- xv. SET 12 ZERO F
 1. Press the SET key to enter this mode.
 2. The display will indicate on ZERO F.
 3. This allows you to have the zero follower circuit either ON or OFF. On is the default setting.
 4. Press the SET key to return to menu SET 12 ZERO F
 5. Press the UP key to move to the next menu item.
- xvi. SET 13 ZERO 24F
 1. Press the SET key to enter this mode.
 2. This mode is used for the above zero follower. A setting to determine whether the first 24 hour zero follower will be performed after power is turned on. On is the default setting.
 3. Press the SET key to return to menu SET 13 ZERO 24F.
 4. Press the UP key to move to the next menu item.
- xvii. SET 15 MNT OUT
 1. Press the SET key to enter this menu.
 2. Using the UP key will allow you to select the following: This sets the external output for the maintenance mode. You can select: 2.5mA, 4.0 mA, HOLD or 4-20mA. Default is 2.5mA.
 3. Press the SET key to return to menu SET 15 MNT OUT.
 4. Press the UP key to move to the next menu item.
- xviii. SET 16 MA 4-20
 1. Press the SET key to enter this menu.

2. This menu allows you to tune the 4-20 mA. This must be done using an ammeter.
 3. Press the SET key to return to menu SET 16 MA 4-20.
 4. Press the UP key to move to the next menu item.
- xviii. SET 17 BK LIGHT
1. Press the set key to enter this menu.
 2. Using the UP or DOWN keys, you can toggle between ON and SAVE. When ON the backlight is on continuously. If SAVE the backlight only lights up during an operation or an event. **Default is ON.**
 3. Press the SET key to return to menu SET 17 BK LIGHT.
 4. Press the UP key to move to the next menu item.
- xix. SET 18 ETHERNET
1. Press the UP key to move to the next menu item.
- xx. SET 19 PUMP CK
1. Press the UP key to enter this menu.
 2. On PUMP CK will be displayed.
 3. Using the UP or DOWN buttons toggles between ON or OFF. **The default is ON.**
 4. Press the SET key to return to menu SET 19 PUMP CK.
 5. Press the MODE key to return to menu 2-10 SETTINGS.
 6. Press the UP key to move to the next menu item.
- I. 2-11 PL DATA
- i. No adjustment.
 - ii. Press the UP key to move to the next menu.
- m. 2-12 FAULT
- i. No adjustment.
 - ii. Press the UP key to move to the next menu.
- n. 2-13 F MODE
- i. This is the FACTORY MODE, password is required to enter this mode. No customer adjustments.
 - ii. Push and hold the MODE key to return to normal operation.