INSTRUCTION MANUAL
MODEL GX-86A

PORTABLE FOUR GAS DETECTOR

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INTRODUCTION

The RKI Model GX-86A is an advanced gas detection instrument, incorporating proven detection hardware and microprocessor controls. The GX-86A is compact, convenient, and offers a full range of features, including:

- Simultaneous detection of combustible gas, oxygen deficiency, carbon monoxide, and hydrogen sulfide. (Other toxic gases optional.)
- Dot-matrix liquid crystal display (LCD) for complete, understandable information at a glance
- Distinctive audible alarms for dangerous conditions and malfunctions
- Intrinsic safety for Class I, Division I, Groups A, B, C, and D hazardous atmospheres
- Microprocessor control for reliability, ease of use, and advanced capabilities, including data logging and user-adjustable alarms
- Convenient size, with the full range of well-known GX-86 accessories

WARNING

THE GX-86A IS DESIGNED TO DETECT COMBUSTIBLE GAS, OXYGEN DEFICIENCY, HYDROGEN SULFIDE, AND CARBON MONOXIDE, WHICH CAN BE LETHAL. USERS MUST FOLLOW THE INSTRUCTIONS AND WARNINGS IN THIS MANUAL TO ASSURE PROPER AND SAFE OPERATION OF THE INSTRUMENT.

DESCRIPTION

The RKI Model GX-86A detects combustible gas (LEL), oxygen deficiency (O_2), carbon monoxide (CO), and hydrogen sulfide (H_2S). See Table 1 for standard detection ranges for these gases. Gas detection features include distinctive alarms for dangerous gas concentrations, time-weighted averaging and short term exposure limit for toxic gases, and logging of detection data.

Table 1: Standard Detection Ranges

Gas Detected	Range
Combustible	0 - 100% LEL (lower explosive limit)
O_2	0 - 40%
H_2S	0 - 100 ppm (parts per million)
CO	0 - 300 ppm

The GX-86A has a rugged plastic housing, touch-pad control panel, and a back-lit dot matrix LCD. The included carrying case protects the instrument and allows hands-free operation for the user. See Figure 1.

The GX-86A is easy to adjust and maintain, with user-replaceable batteries and sensors. The microprocessor control enables the user to display a comprehensive listing of gas levels detected and other related data.

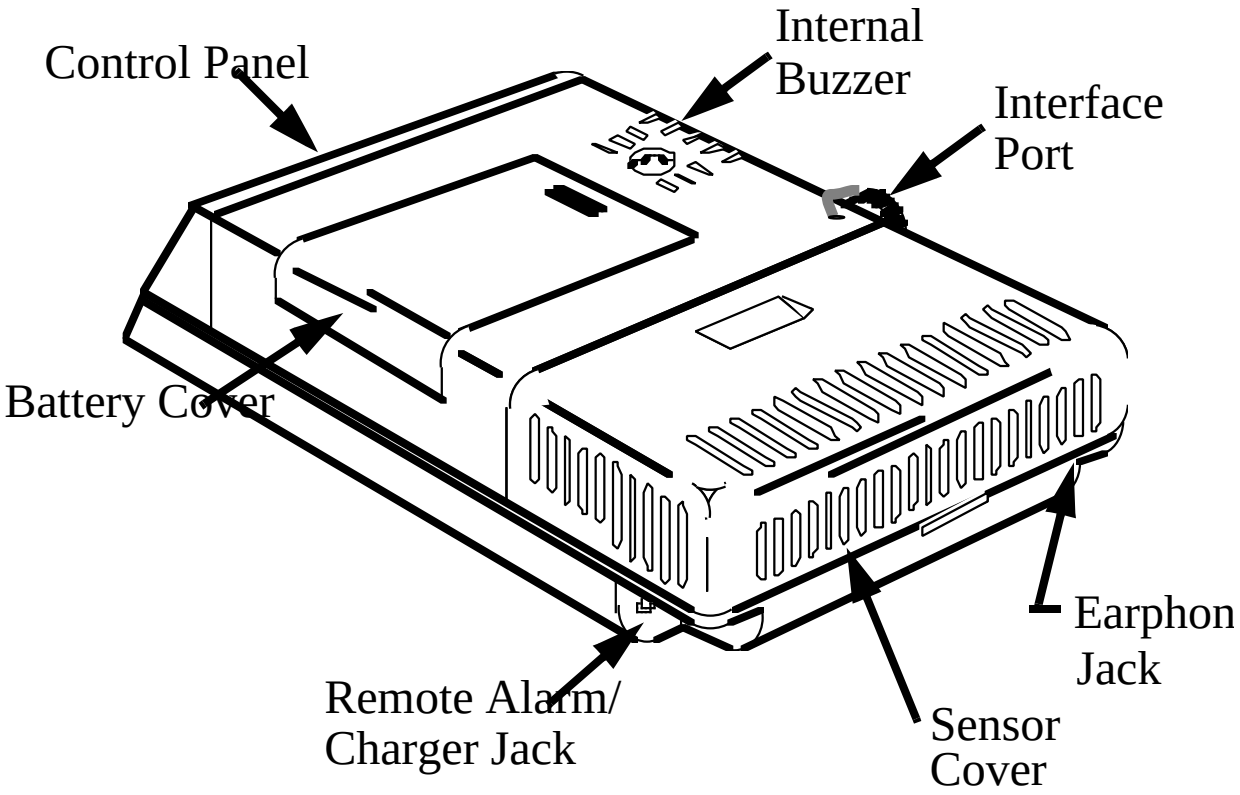


Figure 1. GX-86A Components

COMPONENTS AND CONTROLS

Case

The GX-86A has a durable plastic case. The sensors are housed in a detachable block at the bottom of the instrument.

Control Panel

The control panel contains the display, alarm lights, and switches that control the many functions of the GX-86A. The switches are touch-pads, to reduce the possibility of accidental activation or damage. See Figure 2.

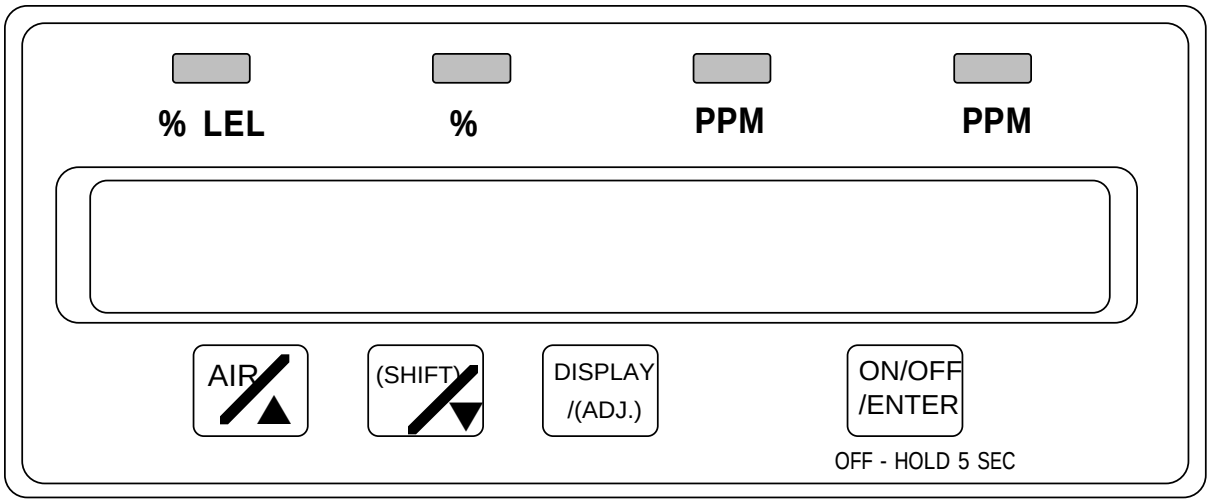


Figure 2. Control P

Switches

1. ON/OFF/ENTER

   The ON/OFF/ENTER switch controls power to the instrument. (Bias power for the electrochemical sensors is not affected by the power switch.) It also selects input modes to access user-changeable features.

2. AIR/▲

   The AIR/▲ switch activates the GX-86A's Demand Zero function, which automatically adjusts the instrument in fresh-air conditions. It is also used to scroll through the display and settings modes.

3. (SHIFT)/▼

   The (SHIFT)/▼ switch scrolls through the display and settings modes, and enters instructions into the GX-86A's microprocessor.

4. DISPLAY/(ADJ)

   The DISPLAY/(ADJ) switch activates the display modes, and enters instructions into the GX-86A's microprocessor.

5. Alarm LEDs

   Four red light-emitting diodes (LEDs) provide visual alarms for gas concentrations and malfunctions.

Battery Compartment

The GX-86A uses two "C" size cells; alkaline batteries will run the GX-86A for approximately 10 hours, rechargeable nickel-cadmium batteries will run for approximately 7 hours. (Rechargeable batteries can be recharged in the GX-86A with the optional battery charger.)

The GX-86A battery compartment is located on the back of the instrument. The battery cover has a strap to prevent accidental opening.

Interface Port

The GX-86A's built-in data logger records gas concentrations at programmed intervals. These measurements can be downloaded through the interface port to a PC-compatible computer for use in data

analysis programs.

Buzzers and Earphone

An electronic buzzer is mounted at the back of the case, behind a felt screen. The buzzer sounds for gas alarms and system malfunctions.

A 2.5 mm phone jack at the bottom left rear corner of the case connects to an earphone, for use in high noise environments. An identical jack on the bottom right rear corner connects to an external buzzer or the optional battery charger.

Carrying Case

The carrying case has openings for the diffusion grill, buzzer, remote alarm/charger jack, earphone jack, control panel, and Data Logger interface port. The carrying case includes a belt loop and shoulder straps.

Sensors

The sensors are mounted at the rear of the instrument, in a removable block. A slotted metal cover protects the sensors, but allows

atmosphere to diffuse inward. See Figure 3.

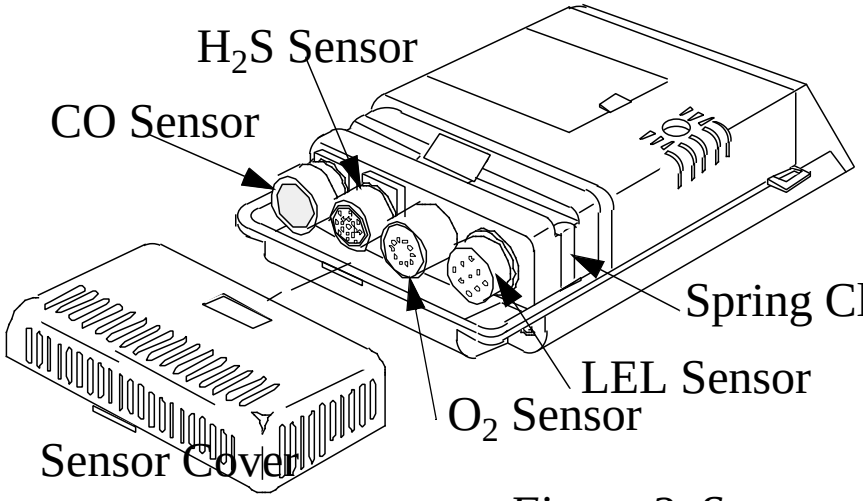


Figure 3. Sensors

Combustible Gas Sensor

The LEL sensor detects combustible gas and vapors in the atmosphere with a catalytic platinum element. The reaction of gas with oxygen on the catalyst causes a change in the resistance of the element, which is converted by the GX-86A into a reading of gas concentration.

The LEL sensor responds to a wide range of gases; see Appendix A for the Relative Response Chart.

Oxygen Sensor

The O_2 sensor is an electrochemical cell, which reacts to the oxygen in the atmosphere, producing a current proportional to the oxygen concentration. This current is converted by the GX-86A into an oxygen reading.

CO, and H_2S (Toxics) Sensors

The toxics sensors are electrochemical cells, which react to gas in the

atmosphere, producing a current proportional to the concentration of gas. The current is converted by the GX-86A into a measurement of gas concentration. The CO sensor uses a charcoal filter disk that covers its opening, to eliminate interference from H_2S.

To maintain sensitivity and stability, these sensors are kept on a continuous bias current, even when the instrument power is off. Batteries with an adequate charge must be installed to provide the bias current.

OPERATION

Preparation

Normally the GX-86A requires little preparation before use. To install the GX-86 Extender Cable, see the ACCESSORIES section.

Standard Start-up

1. Press the ON/OFF/ENTER switch once.
   a. This message shows only when the "Lunchbreak" feature is activated (See USER OPTIONS). Press the AIR/▲ switch to continue Short Term Exposure Limit (STL) and Time-Weighted Average readings from the last use of the GX-86A. Press DISP/ (ADJ.) to start new STL and TWA readings

STL TWA RESUME YES:AIR NO:DISP

   Lunchbreak can accumulate up to 100 hours of STL/TWA readings. If the 100-hour limit is exceeded, this prompt appears:

CANT RESUME PUSH AIR: CLEAR

   Press AIR/▲ to clear the memory and start accumulation of readings.

   b. The start-up battery check shows the minimum usable and actual battery voltage (for example, 3.0V for fresh batteries).

BATTERY MIN. 2.3V BATTERY NOW 3.0V

c. This message shows to verify that the data logger circuits are set properly for accurate data collection according to date and time.

DATE / TIME MMM DD YY 00:00

d. These messages show while the GX-86A checks itself for proper operation. If a malfunction occurs, the display will alert the user. (The display shows “HC” [hydrocarbons] for the %LEL reading.)

SELF DIAGNOSIS 10 SECONDS TO GO

HC O2 H2S CO STANDBY

d. The normal operating display shows after the “OK” message, showing fresh-air concentrations for all gases. The GX-86A sounds a double tone to indicate the instrument is in normal operation.

HC O2 H2S CO OK

2. Verify Operation

To easily verify correct operation of the GX-86A, breathe out over the diffusion grill of the instrument. The O2 reading should drop measurably before returning to normal.

To verify detection of combustibles use a controlled source of flammable vapor, for example a bottle of isopropyl alcohol. The

audible alarm will sound, the ALARM LED will blink, and the HC will flash on the display.

Caution

Do not use gas from a cigarette lighter to test response to combustibles. Exposing the sensor to uncontrolled high concentrations of gas in this manner will reduce response and sensor life.

WARNING

IF THE GX-86A DOES NOT RESPOND TO THESE VERIFICATIONS, TAKE IT TO A KNOWN "FRESH-AIR" ENVIRONMENT, THEN FOLLOW THE DEMAND ZERO PROCEDURE DESCRIBED IN ADJUSTMENT AND CALIBRATION. REPEAT THE VERIFY OPERATION PROCEDURE BEFORE USING THE GX-86A IN A POTENTIALLY HAZARDOUS LOCATION.

Normal Operation

The GX-86A will continuously monitor the atmosphere, and display the LEL, O_2, and toxic gas concentrations present. If the GX-86A is taken into a low-light environment, the display backlight will automatically turn on. To use with sample-drawing attachments, insert the probe into the area to be monitored and wait a few seconds for response.

DISPLAY FUNCTIONS

While the GX-86A is in normal operation, press the DISPLAY/(ADJ.) switch to step through the measurement functions. The display will hold for 20 seconds before reverting to normal detection, or until DISPLAY/(ADJ.) is pressed to go to the next screen.

User and Station ID

This screen appears only when the user ID option is activated. (See USER OPTIONS.) Use this screen to verify user, location, or other programmed information.

U ID:0123456789 S ID:ABCDEFGHIJ

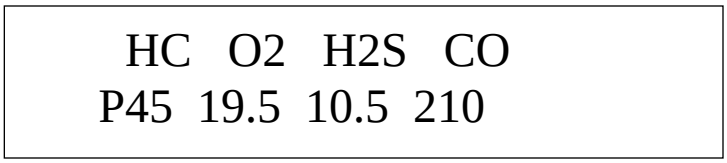
To change User and Station ID:

1. At the User and Station ID screen, press ON/OFF/ENTER.
2. The first character (left end) on “U ID” will flash. Press AIR or SHIFT to scroll through 0 - 9, A - Z to select the desired character.
3. Press ON/OFF/ENTER to enter that value and move to the next character.
4. Repeat steps 1. and 2. until the desired User and Station IDs are entered.

Peak

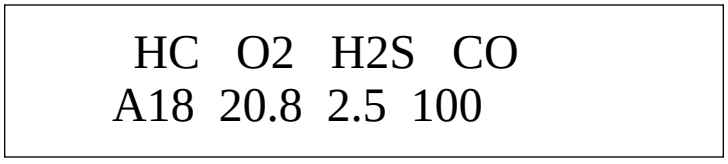
The Peak function shows the highest (lowest for O_2) concentrations detected since the GX-86A was turned on. Peak readings (indicated by “P” at the left side of the display) stay in the instrument’s memory

until a higher level is detected, the data logger is cleared, or the unit is turned off.



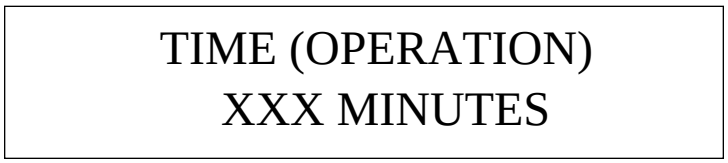
Average

The Average function shows the average gas concentrations (indicated by “A” at the left side of the display) detected since the last time the GX-86A was turned on or the data logger was cleared.



Elapsed Time

The Elapsed Time function shows the time in minutes since the memory was cleared or the instrument was turned on. This allows the user to easily track total time over multiple monitoring sessions.

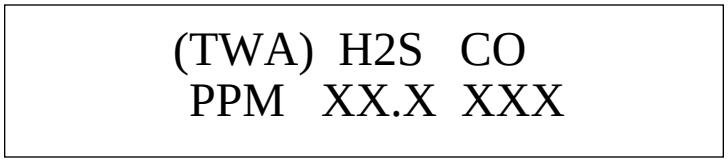


Short-Term Exposure Limit (STL)

The STL function shows the average reading for toxic gases during the last 15 minutes.

Time-Weighted Average (TWA)

The TWA function shows the average reading for toxic gases during the last 8 hours. If 8 hours has not elapsed since the last time the STEL/TWA was cleared, the average is still calculated over 8 hours, with the missing time assigned a 0 value for readings.



Battery Voltage

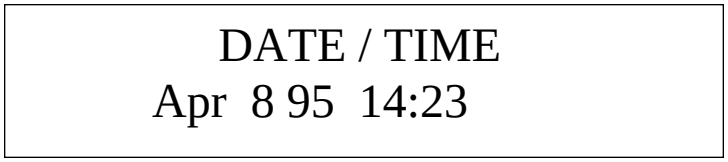
The Battery Voltage function shows the minimum operating voltage and present battery voltage.

Note

The GX-86A automatically checks battery voltage during start-up; if the measurement is below 2.3V, the GX-86A will not operate.

Date / Time

This function shows the current time, date, and ambient temperature, for example:



Clear Data Logger

The Clear Data Logger function allows the user to reset the data logger storage to accept a new set of data. Clearing the Data Logger also resets the Peak, Average, Time in Operation, STL, TWA, and Log. Time readings. This function shows three displays. Press AIR/▲ to continue through this function, or DISPLAY/(ADJ.) to skip to the next function.

CLEAR DATALOGGER? YES: AIR NO: DISP

ARE YOU SURE? YES:AIR NO:DISP

CLEARED OK

Log. Time

The Log. Time function shows the time left on the data collection program. The duration depends upon the frequency of sampling. Press DISPLAY/(ADJ.) once more to return to the normal operating display.

LOG. TIME: XXX HOURS REMAINING

ALARMS

Alarm Indications

1. Combustibles (%LEL)

   If the combustible gas detected exceeds the first level alarm setting (20% LEL for most applications), a pulsed tone will sound, the %LEL LED will blink, and the “HC” on the display will flash.

   If the combustible gas detected rises above the high alarm setting (50% LEL for most applications), the alarm tone and LED will be continuous.

2. Oxygen

   If the oxygen content of the air drops below the low alarm setting (usually 19.5%), a pulsed tone will sound, the % LED will blink, and the “O2” on the display will flash.

   If the oxygen content of the air rises above the high alarm setting (usually 22.5%), the alarm tone and LED will be continuous.

3. H_2S

   If the H_2S detected exceeds the alarm setting (usually 10 ppm), a pulsed tone will sound, the PPM LED above the H_2S reading will blink, and the “H2S” on the display will flash.

4. CO

   If the CO detected exceeds the alarm setting (usually 25 ppm), a pulsed tone will sound, the PPM LED above the CO reading will blink, and the “CO” on the display will flash.

5. STEL (toxics only)

   If the average toxic gas level detected over the last 15 minutes exceeds the STL, an alarm will sound and the message “STL” will show on the display in the field for that gas.

6. TWA (toxics only)

   If the average toxic gas level detected over the last 8 hours exceeds the TWA, an alarm will sound and the message “TWA” will show on the display in the field for that gas.

7. CLG (toxics only)

   If toxic gas detected exceeds the ceiling level, the alarm tone and LED will be continuous, and the display will alternate between “CLG” and the name of that gas.

8. If the full scale reading is exceeded for any channel, the alarm tone and LED will be continuous. The display will show “MAX” in the field for that gas.

Resetting Alarms

The GX-86A can be set for latching or self-resetting logic. Latching alarms can not be reset until the gas concentration falls below the alarm point. When the condition is corrected, press DISPLAY to reset the alarm. Self-resetting alarms will automatically shut off when the concentration falls below the alarm point. (See USER OPTIONS.)

Malfunction Alarm and Emergency Operation

The GX-86A continuously monitors itself for proper operation. If a malfunction occurs, a single steady “trouble” tone will sound, and one of the following messages will show on the display:

1. Sensor failure

   If any sensor fails during operation, the display will show the failed sensor in parentheses (CO sensor in this example):

```
SELF DIAGNOSIS
FAIL(     CO)
```

   To continue using the GX-86A, turn it off, then follow the appropriate start-up sequence. During start-up the display will show the failed channel before the count down. In normal operation display will indicate the failed sensor as “xx or xx.x.”

```
HC   O2   H2S   CO
 0  20.9  00.0  xxx
```

Low Battery Alarm

When the battery charge drops near the lower limit, the display will show the first screen below, with the “B” flashing. When the charge drops to the limit, the second screen will show, with the “CHANGE BATTERY” flashing, the buzzer will sound continuously, and the GX-86A can not be used to monitor gas concentrations:

```
  HC   O2   H2S   CO
B 0  20.9  00.0   0
```

```
HC   O2   H2S   CO
     CHANGE BATTERY
```

CALIBRATION AND MAINTENANCE

The GX-86A's microprocessor circuits provide advanced calibration and adjustment features, including Demand Zero and Auto Calibration.

Note

Calibrate the GX-86A when a gas reading drifts below zero or a sensor has been replaced.

Calibration Supplies and Equipment

For automatic one-source calibration, the RKI Four Gas Cylinder can be used to adjust all sensors with one connection and one operation.

To calibrate the GX-86A with separate gas sources, you will need the following supplies and equipment:

- Known calibrating samples of combustible and the appropriate toxic gases. The samples should have concentrations in approximately the middle of the range of detection.
- An oxygen-free source, such as pure nitrogen or CO in a nitrogen balance
- A flowmeter with a range of 0 - 1.0 SCFH
- A control valve/pressure regulator, non-absorbent tubing, and adapter cups

Demand Zero and Calibration Preparation

1. Take the GX-86A to a non-hazardous location with fresh-air conditions.
2. Turn on the instrument and allow 1 minute after the "OK" display to warm up.

3. Demand Zero

   Press and hold the AIR/▲ switch on the control panel until a tone sounds. Follow the instructions on the display:

DEMAND ZERO HOLD AIR KEY

ADJUSTING ZERO HOLD AIR KEY

ZERO ADJUSTED RELEASE AIR KEY

   The instrument will automatically set the LEL and toxics circuits to zero and the O_2 circuit to 20.9%.

Calibration Start-up

1. Preparation

   Assemble the calibration cylinder (Four-Gas for Auto Calibration, or a specific cylinder for separate gas calibration), valve/regulator, flowmeter, and adapter cup.

Note

Allow adequate time for the GX-86A to respond to changes in adjustment. Adjust the controls in small increments, then wait approximately 3 seconds for a change in reading. Ignore alarms during the calibration procedure.

2. Enter calibration mode

   With the instrument on, press and hold the (SHIFT)/▼ switch, then press the DISPLAY/(ADJ.) switch. The display will show:

   ```
   1.AUTO CAL.
   2.SET SPAN <HC>
   ```

   The "1" will flash, indicating the active selection. To select Auto Calibration, press ON/OFF/ENTER. (Go to next section, Auto Calibration.)

   To skip to separate calibration for individual sensors, press the (SHIFT)/▼ switch to scroll down through the calibration menu (Press AIR/▲ to scroll up). The flashing number indicates the active selection. Press ON/OFF/ENTER to start calibration for that selection. (Go to Combustibles Span section.)

Auto Calibration

At the Auto Calibration prompt, press AIR to enter the Auto Calibration procedure, or DISPLAY to return to the calibration menu.

```
AUTO CALIBRATION
YES:AIR NO:DISP.
```

1. Setting Calibration Values

   The Calibration Values display shows the current settings in the instrument's memory for Auto Calibration. These values must agree with the gas concentrations written on the Four-Gas

Cylinder.

AUTO CALIBRATION 50 12.0 25.0 50

To change the calibration values, press the (SHIFT)/▼ and DISPLAY/(ADJ.). The following screen will appear.

SET CAL. <HC> 50 LEL

Press the AIR/▲ or (SHIFT)/▼ to adjust the LEL value to agree with the concentration on the Four-Gas Cylinder. Press ON/OFF/ ENTER to advance to the SET CAL screen, the repeat the adjustment procedure for O_2, H_2S and CO.

2. Perform Auto Calibration

   After setting all Calibration Values, the display will return to the Calibration Values screen.

   a. Press ON/OFF/ENTER to go to the next screen:

GAS/WAIT/ENTER 0 20.9 0.0 0

   b. Turn on the Four-Gas Cylinder and wait approximately 1 minute for the flow and instrument readings to stabilize.

   c. Press ON/OFF/ENTER to calibrate the detection circuits. The

END screen will appear:

AUTO CALIBRATION NORMAL END

d. After the end screen, the display automatically returns to the first calibration screen.

e Turn off the Four-Gas Cylinder and disconnect it from the valve.

f. Press (SHIFT)/▼ to scroll through the options to "7.RETURN," then press ON/OFF/ENTER to return to normal operation.

Combustibles Span

Note

The combustible gas sensor is a general hydrocarbon sensor that responds to most flammable vapors and gases; the response will vary depending upon the substance. For best results, calibrate the instrument to the gas or vapor intended to be detected. See Appendix A for Relative Response Curves for common gases and vapors.

1. At the Calibration Mode screen, press (SHIFT)/▼ to scroll to "2. SET SPAN <HC>." Press ON/OFF/ENTER to select. The display will show:

HC CAL. 0LEL GAS/ADJ./ENTER

2. Turn on the combustible gas calibration source, for example a 50% LEL cylinder. Wait approximately 1 minute while the LEL

reading stabilizes:

HC CAL. 45LEL GAS/ADJ./ENTER

3. If the reading does not correspond to the sample, press the AIR/▲ switch to increase the reading, or the (SHIFT)/▼ switch to decrease the reading.
4. Press ON/OFF/ENTER. The END screen will show:

HC CAL. END

5. The display will automatically return to the Calibration Menu. Press (SHIFT) to scroll down to the next desired calibration.
6. Turn off the combustible gas cylinder and disconnect it from the valve.

Oxygen Zero

1. Connect an oxygen free or low-concentration (e.g. the RKI Four-Gas Cylinder has 12% O_2) known oxygen sample to the calibration adapter.
2. From the calibration menu, scroll to “3. SET O2 ZERO,” then press ON/OFF/ENTER to start O_2 zero. The display will show:

O2 CAL. 20.9% GAS/ADJ./ENTER

3. Open the control valve to the sample source and set the flow to 1.0 SCFH.
4. The reading should fall to near zero for an oxygen-free sample, or

near the level of the low concentration sample. Adjust the reading using the AIR/▲ or (SHIFT)/▼ switches.

5. Press ON/OFF/ENTER to complete the oxygen zero sequence.
6. Turn off the zero oxygen cylinder and disconnect it from the valve.

H_2S and CO Span

1. Connect a H_2S or CO calibration cylinder to the adapter.
2. From the calibration menu, scroll to “4.SET SPAN <H2S>,” or “5.SET SPAN <CO>.” Press ON/OFF/ENTER to start the selected calibration.
3. Adjust the calibration value following the procedure in Combustibles Span, steps 2 - 6.

Note

The GX-86A will display up to 99 ppm H_2S, but the limit of linear response is 60 ppm, well above acceptable exposure levels..

The GX-86A will display up to 499 ppm CO, but the limit of linear response is 150 ppm, well above acceptable exposure levels.

If any reading cannot be set to agree with the calibrating gas sample, replace the sensor.

MAINTENANCE

Batteries

1. Check the battery voltage periodically by pressing the DISPLAY switch to reach the Battery Voltage function. Replace the batteries before the voltage drops to the operational limit (see Operation-Alarms).

WARNING

TAKE THE GX-86A TO A NON-HAZARDOUS LOCATION BEFORE CHANGING OR CHARGING THE BATTERIES.

2. To replace the batteries, remove the battery compartment cover. Remove the batteries and verify that the battery compartment and electrical contacts are clean. Insert fresh batteries (alkaline or fully-charged NiCd) according to the polarity (+/-) markings and replace the cover.
3. Recharging Batteries

   Rechargeable batteries may be recharged inside the GX-86A in a non-hazardous location. Turn the instrument off, connect the charger to the charger jack, and plug the charger into a 115 V AC outlet. Full charge requires approximately 12 hours.

3. Bias Current Discharge

   The batteries continuously supply a small current to maintain the toxics sensors, even when the instrument is off (see Sensor Maintenance). This current drain is minimal, but will result in a normal discharge of the batteries over a period of several weeks.

Note

If the batteries are fully discharged before replacement, allow 1/2 hour for the toxics circuits to show a normal response.

Sensor Maintenance

Electrochemical sensors (O_2, H_2S, CO) gradually deteriorate, regardless of use, and require periodic replacement. Combustibles sensor life is generally related to usage, but other factors may affect duration.

The GX-86A sensors are easy to replace, but only the combustibles sensor contains user-serviceable components. If a sensor requires replacement, call RKI or your local distributor. All sensors are warranted usable for one year from the date of shipment. Sensors that fail within the warranty period will be replaced at no charge.

Combustibles Sensor

Replace the combustibles sensor or filaments when:

1. The combustibles circuit cannot be calibrated correctly.
2. The HC (%LEL) display does not show 0 immediately after the start-up sequence, and it cannot be set to zero by the Demand Zero command.

O_2 Sensor

Replace the O_2 sensor when:

1. The O_2 circuit cannot be set to 00.0% on an oxygen-free sample.
2. The OXY (O2) display does not show 20.9% immediately after

the start-up sequence and after the Demand Zero command.

3. The O_2 reading tends to drift with instrument orientation.

Toxics Sensors

Replace the sensor when:

1. The detection circuit cannot be calibrated correctly.
2. The display does not show 0 (CO) or 00 (H_2S) immediately after the start-up sequence and cannot be set to zero by Demand Zero.

Note

Allow up to 1/2 hour after the toxics sensors have been replaced to show a normal response, then calibrate.

Sensor Replacement

1. Take the GX-86A to a non-hazardous location and turn the power off.
2. Remove the instrument from the carrying case.
3. Press in the cover latch and slide the sensor cover down and away from the instrument case.
4. To replace individual sensors, press down and turn counter-clock-wise, then pull out of block. Figure 4. shows the installation of the

CO sensor with filter; do not use the filter with other other sensors.

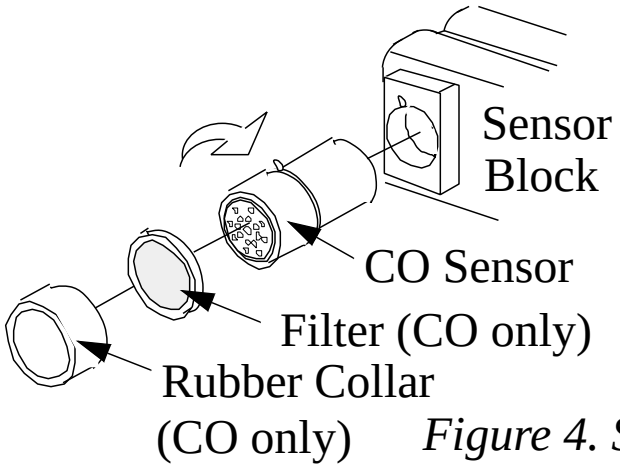


Figure 4. Sensor Insta

5. Insert a new sensor and turn clockwise. Be sure to use the correct socket for the sensor type; sensors are not interchangeable between sockets.
6. Reinstall the cover.
7. Turn on the instrument and verify the display is normal.
8. Calibrate the detection circuit to work correctly with the new sensor.

CO Filter

CO sensors are equipped with an activated carbon filter disk that removes H_2S and most hydrocarbons to limit interference with the CO measurement.

Replace the filter when CO readings become suspect (e.g., CO circuit calibrates properly, but shows response in a known CO-free environment), or when replacing sensor, whichever comes first. See Figure 4.

ACCESSORIES

Extender Cable

The Extender Cable extends the sensor block up to 10 meters from the instrument, allowing confined space and remote monitoring, with all the features of the GX-86A. The Extender cable includes the cable with sensor block plug and socket, and a rubber guard for the sensor cover.

1. Installing Extender Cable (Figure 5)
   Take the GX-86A to a non-hazardous area and turn off.

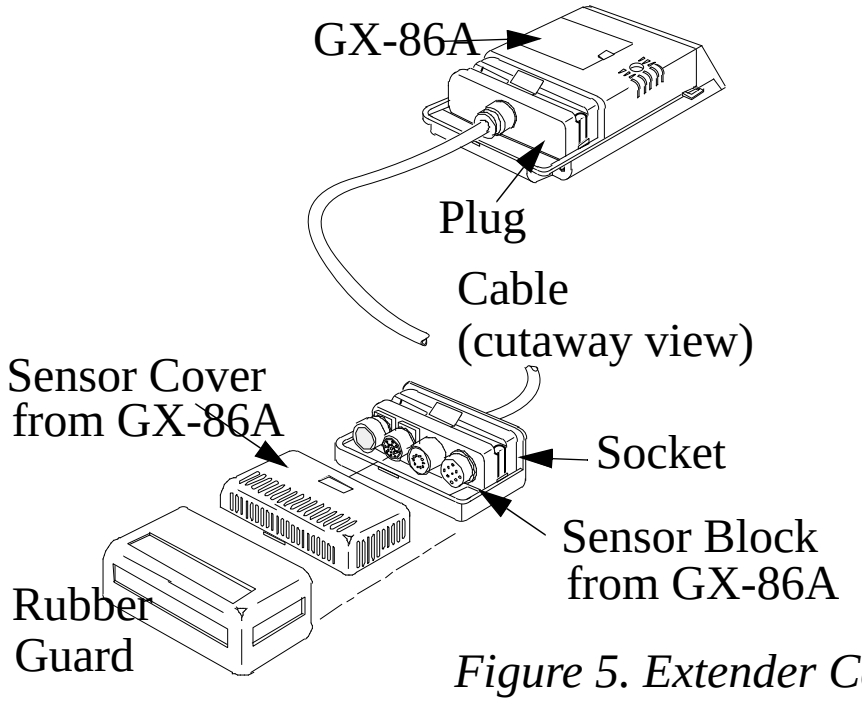


Figure 5. Extender C

2. Remove the sensor cover.
3. Flip open the spring clips at the sides of the sensor block.
4. Pull the block straight up to unplug.
5. Plug the extender cable into the GX-86A, in place of the sensor block. Flip closed the spring clips.

6. Plug the sensor block into the end of the Extender Cable. Close the spring clips.
7. Slide the sensor cover over the block on the end of the Extender Cable. Slip on the rubber guard.
8. Start-up the GX-86A and verify operation as normal.

USER OPTIONS

The advanced microprocessor program in the GX-86A allows the user to select and adjust many of the detection and data logging features. The GX-86A is pre-set to suit most applications; follow these instructions only if required.

Entering Programming Mode

1. Take the GX-86A to a non-hazardous location—the instrument does not detect gas during programming operations.
2. Turn the GX-86A off.
3. Hold down the AIR and (SHIFT) switches, then press ON. The programming menu will appear:

```
1.SET NVRAM DEFAULT
2.SET COMBINATION GAS
```

General Programming Hints

- Press (SHIFT) to scroll down through the menu, and to change values in a specific option.
- Press AIR to scroll up through the menu, and to change values in a specific option.
- Press ON/OFF/ENTER to select an individual option, and to enter data during programming.
- The current option shows a flashing number.
- Many options have on-screen instructions

SET DEF. NVRAM

1. "DEF. SET ALL"

   The first option allows the user to reset all values for non-volatile RAM; all options are returned to default values.

2. "DEF. SET ALARM"

   The second option resets only the alarm levels to default values.

3. "DEF. SET O2 ZERO"

   The third option resets the O_2 zero to default value.

COMBINE GAS

Sets the display and circuitry for types of gases to be detected; there are 11 possible combinations.

Note

Change the GAS COMBINATION values only when the appropriate sensors are used, in the corresponding sensor sockets.

SET ALARM

Sets the alarm levels for gases detected by the GX-86A. If different gases are specified by the GAS COMBINATION option, the Set Alarm prompts will show those gases.

1. "SET ALARM <HC>"

   Prompts the user to change LOW and HIGH %LEL alarms for combustibles.

2. "SET ALARM <O2>"

   Prompts changes for LOW and HIGH %O_2 alarms.

3. “SET ALARM <H2S>”

   Prompts changes for LOW, TWA, STL, and CLG (ceiling) alarms for H_2S.

4. “SET ALARM <CO>”

   Prompts changes for LOW, TWA, STL, and CLG (ceiling) alarms for CO.

SET SERIAL No.

Sets the serial number for use by the Data Logger.

1. At the “SERIAL No.” screen, the first character (left end) will flash. Press AIR or SHIFT to scroll through 0 - 9, A - Z to select the desired character.
2. Press ON/OFF/ENTER to enter that value and move to the next character.
3. Repeat steps 1. and 2. until the serial number is displayed, then press ON/OFF/ENTER to go to the END screen.

SET DATE / TIME

Sets the date and time for use by the Data Logger.

1. The SET DATE / TIME screen shows the current settings, with the month flashing.
2. Press AIR or (SHIFT) to select the desired month.
3. Press ON/OFF/ENTER to enter the selection and go to the next setting.
4. Repeat steps 2 and 3 for each value: day, year, hours, minutes.
5. When the desire date/time is entered, press ON/OFF/ENTER to go to the END.

SET INT. TIME

Sets the interval between logging events for the Data Logger. Minimum value 10 seconds, maximum value 300 seconds.

LATCHING ALARM

Toggles the instrument alarm logic between self-resetting (default) and latching alarms.

Note

In the event of an alarm, the latching alarms option requires the user to press DISPLAY/(ADJ.) to reset the alarms, even after the gas concentration has dropped below the alarm level.

SET LUNCH

Toggles the Lunchbreak feature on and off. With Lunchbreak off (default), the STL TWA RESUME screen does not show at start-up.

SET ID

Toggles the ID INPUT option on and off. With the option off (default) the user can not change the USER and ID values (see Display Functions).

SET TIME CAL.

Sets the interval between calibration alerts on the GX-86A. Default setting is off, with a range of 1 - 9999 hours. Tip: hold AIR or (SHIFT) to scroll rapidly through values.

SET LOG ALARM

Sets the value of Data Logger memory capacity alerts on the GX-86A. Default setting is off, with a range of 1 - 100%. Tip: hold AIR or (SHIFT) to scroll rapidly through values.

AUTO CAL.

The procedure is the same as described in Calibration and Maintenance, Auto Calibration.

DISPLAY VOL.

Displays the output (in mV) for each of the active sensors.

START

Press ON/OFF/ENTER to begin the instrument's normal start-up sequence.