

October 2018 Rev. C 35 E. Third Street West Alexandria, OH USA Phone: 1-877-739-2721 Fax: 1-877-739-2723 E-mail: info@rexarc.com www.rexarc.com

INSTALLATION, OPERATION & MAINTENANCE MANUAL (3-02-0134B)

ACETYLENE CYLINDER LEAK DETECTOR SYSTEM



WARNING

READ ALL INFORMATION IN THIS MANUAL BEFORE INSTALLING OR OPERATING THE ACETYLENE LEAK DETECTOR SYSTEM.

DO NOT REMOVE, REPAIR, OR REPLACE ANY ITEM ON THIS SYSTEM WHILE THE UNIT IS POWERED.

NEVER OPERATE THIS SYSTEM OUTSIDE OPERATING CONDITIONS. OPERATION OUTSIDE OF SPECIFIED CONDITIONS WILL RESULT IN DECREASED PERFORMANCE, POSSIBLE DAMAGE TO THE UNIT AND/OR PERSONAL INJURY.

SECTION 1

HANDLING

SAFFT

1.1 HANDLING INSTRUCTIONS

DO NOT LIFT THE ACEYLENE LEAK DETECTOR SYSTEM BY THE PIPING AND/OR COMPONENTS OF THE SYSTEM. THESE COMPONENTS ARE NOT DESIGNED TO HOLD THE WEIGHT OF THE UNIT. PERSONAL INJURY AND/OR EQUIPMENT DAMAGE MAY RESULT.

Lift the Acetylene Leak Detector System by hand and lift from the mounting bracket and/or steel piping.

1.2 STORAGE INSTRUCTIONS

If this unit is to be placed in storage before it is installed, it should be stored indoors and covered to keep it clean. The location should be free from corrosive gasses and extreme humidity, which can cause damage to the unit. It is critical that nothing is sat on the unit which could cause damage to the components.

1.3 EQUIPMENT CHECK

Inspect the Acetylene Leak Detector System for any damage that may have occurred during shipment. Inspect all electronics, fittings, piping connection, fasteners, etc. Also check for loose connections.

IF ACETYLENE LEAK DETECTOR SYSTEM WAS DAMAGED DURING SHIPMENT:

- 1) NOTIFY CARRIER IMMEDIATELY AND FILE A CLAIM.
- 2) CONSULT REXARC BEFORE OPERATING THE ACETYLENE SYSTEM

SECTION 2

2.1 HANDLING

DO NOT LIFT THE ACETYLENE LEAK DETECTOR SYSTEM BY THE PIPING AND COMPONENTS OF THE SYSTEM. THESE COMPONENTS ARE NOT DESIGNED TO HOLD THE WEIGHT OF THE UNIT. PERSONAL INJURY AND/OR EQUIPMENT DAMAGE MAY RESULT.

Lift the Acetylene Leak Detector System by hand and lift from the mounting bracket.

2.2 INSTALLATION

WHEN INSTALLING AND OPERATING THIS EQUIPMENT, COMPLY WITH THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES.

2.3 OPERATION

DO NOT OPERATE THE ACETYLENE LEAK DETECTOR SYSTEM IF ANY DAMAGE IS PRESENT. DAMAGE TO THE UNIT CAN MAKE IT UNSAFE TO USE. INSPECT THE UNIT REGULARLY FOR CORROSION AND ANY DAMAGE (I.E., DENTS, GOUGES OR BULGES). IF DAMAGED, TAKE OUT OF SERVICE IMMEDIATELY.

DO NOT OPERATE THIS ACETYLENE LEAK DETECTOR SYSTEM OUTSIDE OF SPECIFIED OPERATING CONDITIONS.

THIS ACETYLENE LEAK DETECTOR SYSTEM IS DESIGNED FOR DETECTING LEAKS ON THE BOTTOM OF ACETYLENE CYLINDERS AS THEY ARE ON THE SCALE.

DO NOT OPERATE THIS ACETYLENE LEAK DETECTOR SYSTEM IF ANY OF THE COMPONENTS HAVE BEEN DAMAGED BY FIRE. TAKE OUT OF SERVICE IMMEDIATELY AND NOTIFY YOUR CERTIFYING AUTHORITY.

FOLLOW ALL MANUFACTURER INSTRUCTIONS (Honeywell) WHEN OPERATING COMPONENTS OF THIS SYSTEM.

2.4 MAINTENANCE

DO NOT REMOVE, REPAIR, OR REPLACE ANY ITEM ON THE ACETYLENE LEAK DETECTOR SYSTEM WHILE IT IS PRESSURIZED OR POWERED UP. TURN OFF THE MAIN POWER TO THE ACETYELNE LEAK DETECTOR SYSTEM AND DEPRESSURIZE THE SYSTEM COMPLETELY BEFORE STARTING MAINTENANCE PROCEDURES.

DO NOT WELD, GRIND, OR MODIFY ANY COMPONENTS OF THE SYSTEM. IT WILL NOT BE SAFE TO OPERATE. (ANY UNCERTIFIED ALTERATION TO THE SYSTEM VOIDS WARRANTY).

FOLLOW ALL MANUFACTURER INSTRUCTIONS AND WARNINGS WHEN PERFORMING MAINTENANCE ON DETECTOR COMPONENTS.

SECTION 3

3.1 SPECIFICATIONS

WEIGHT

Detector Panel	7	Lbs.
Pilot Light	8	Lbs.

DIMENSIONS

Detector Panel	10" x 10" x 5"
Pilot Light	4" x 7"
Suction hose length	72″
Exhaust hose length	48"

CONNECTIONS

Compressed Air Inlet	. 1/4"	NPT
Sample Suction Inlet	1/8"	Tube Fitting
Exhaust hose outlet		

ELECTRICAL

24 VDC

OPERATING CONDITIONS

Compressed Air Pressure Inlet	15 PSI
Temperature	-13°F – 131°F
RH%	0 - 90%

SPECIFICATIONS



www.Rexarc.com PAGE 4



www.Rexarc.com PAGE 5



www.Rexarc.com PAGE 6



www.Rexarc.com PAGE 7

4.1 LOCATION/MOUNTING

DO NOT INSTALL THIS ACETYLENE LEAK DETECTOR SYSTEM IN AN ENVIROMENT OF CORROSIVE CHEMICALS, POISONOUS GASES, OR SATURATED STEAM HEAT.

Locate Acetylene Leak Detector System in a protected, well vented area where ambient temperatures are between -13°F and 131°F. Allow enough clearance over and around the Acetylene Leak Detector System for access to detector and surrounding items. **Refer to SECTION 3.2 for unit dimensions.**

Position the Acetylene Leak Detector System in the upright position on a solid, level, vibration free surface capable of supporting the Acetylene Leak Detector System weight. Use the supplied mounting bracket to mount the Acetylene Leak Detector System. **Refer to SECTION 3.2 for unit dimensions.**

The Acetylene Leak Detector System should not be in extremely dirty areas where airborne contaminants can accumulate on the system. If this cannot be prevented, the Acetylene Leak Detector System should be cleaned periodically.

The Acetylene Leak Detector System should be within eight feet of the scale base using the supplied tubing. This will allow the suction tube to connect to the sample port on the scale base. It is recommended to keep within close proximity of the scale and readily accessible for calibrations and/or adjustments. The provided blow nozzle will also be used periodically to clear the scale filter by back flushing the sample tube.

The Acetylene Leak Detector System pilot light and alarm should be within eye sight of the scale base so that it is easily distinguished when the light indicates a detected leak.

4.2 ELECTRICAL CONNECTIONS

SERIOUS PERSONAL INJURY AND DAMAGE TO THE ACETYLENE LEAK DETECTOR SYSTEM WILL OCCUR IF THE SYSTEM IS CONNECTED TO A POWER SOURCE OTHER THAN THE VOLTAGE LISTED ON THE DATA TAG. ALL ELECTRICAL CONNECTIONS MUST COMPLY WITH THE NATIONAL ELECTRICAL CODE AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES.

The Acetylene Leak Detector System requires a 24 VDC power source. This power source is required to be maintained any time that the scale system is powered at which the detector system is installed.

For a typical installation, the incoming DC power is supplied through the left opening of the detector body. These wires must be run inside of sealed conduit into the switch housing. Material for this step is provided by the customer and performed by the electrician/contractor or internal personnel.

The warning light and alarm buzzer will be connected via the wiring diagram through the right opening on the detector body. These wires must also be run inside of sealed conduit into the enclosure. Material for this step is provided by the customer and performed by the electrician/contractor or internal personnel.

All electrical connections must be made per drawing # 3-02-0134BWD Reference Section 3.5 (Wiring Diagram).

4.3 POSITIONING OF VACUUM PUMP PIPING ASSEMBLY

The supplied vacuum pump and accompanied piping should be mounted directly beside the detector. This will also be connected via a hose to the detector to create the suction to pull samples from the scale base **Reference Section 3.3 (System Layout - Overall)**. This piping should also be readily accessible as it will serve as the suction on/off valve and also where the manual blow valve is located to clear the scale base filter by back flowing pressure.

4.4 POSITIONING OF VACUUM PUMP EXHAUST HOSE

The supplied vacuum pump exhaust hose shall be routed to safe clean location to prevent blockage which will serve as an outlet to the vacuum pump air. It is critical that this line does not become blocked and cause malfunction to the vacuum pump.

4.5 CONNECT AIR INLET LINE

Customer to supply instrument quality air 15 PSIG to the inlet union connection located on vacuum pump piping. Reference Section 3.3 (System Layout - Overall). Clean dry air is critical to maintain system reliability.

SECTION 5

5.1 ACETYLENE DETECTOR GAS CALIBRATION

Calibration can be performed by local safety company which can provide calibration gas, or a calibration gas kit can be purchased through Rexarc (1-02-1868). Reference manufacturer (Honeywell) technical manual for additional information).

Once installation is complete, the detector can be powered on and set up. Follow the steps below: Reference Section 6.1 (Initial & Daily Start up) Prior to powering of unit.

- Ensure all installation and connections are complete.
- Ensure 24 VDC incoming power is present at the detector. This will cause the detector to turn on. Detector will now need to be set with the following instructions for reference. For full manual and instructions, consult the sensor manufacture (Honeywell) manual that came with the system.
- Find and use the provided magnet to navigate the menu through the glass cover of the detector
 - Enter the Configuration Mode
 - If the ambient air is NOT considered reliable to use to set the ZERO, then remove the nut and hose extending to the scale from the bottom of the plastic adaptor and apply a clean source of zero gas or compressed air via a rubber tube slid over the exposed threads.
 - To access the calibration menu, hold the end of the magnet over the switch located at the top center of the detector display 'v' for at least 3 seconds and then remove.
 - The program mode is now entered and ready for selection.
 - Zero Calibration
 - The display will indicate the first configuration mode menu "Set CAL".
 - Put the magnet over the 'V' switch again and move to enter the calibration menu.
 - The display will show the current gas reading and a bottle icon flashing.
 - Connect the zero air and begin the flow with the zero-calibration gas.
 - When the zero gas reading is stable (may take few minutes) use the ' ν ' to confirm zero calibration.
 - If successful the display shows 'Zero PASS' (if not successful, the display shows 'Zero FAIL' and returns to configuration mode).
 - If using zero-air, turn it off and disconnect.
 - Zeroing is complete and saved
 - Span Calibration
 - The display shows 'SPAn' with 'YES' flashing.
 - If span calibration is required use the '1' to proceed to the next step. If span calibration is not required, use the '1' to select 'No' and '1' to return to configuration mode.
 - The display shows the current calibration span gas concentration while flashing the full cylinder icon. Use the '↑↓' buttons to change the calibration span gas concentration and '\' when the required span calibration level is set Rexarc span gas is 25% LEL.
 - The display will show the current gas reading, and the full bottle icon will continue to flash.
 - Connect the span gas to the bottom fitting and begin the flow of gas.
 - The live gas reading is displayed. When the reading is stable (may take a few minutes), use the 'V' to confirm span calibration.
 - The detector may now ask if the sensing element has been replaced it it senses that is has been. This screen may or not be displayed. Use the '↑↓' buttons to select 'YES if the sensor has been replaced or 'NO if it has not been replaced.
 - If the span calibration is successful, the instrument will briefly display 'SPAn PASS' (if fails "SPAn FAIL' is displayed and returns to the configuration mode.)
 - The display alternates between 'Purg gAS' and the gas reading to indicate that the unit is expecting the span gas to be removed from the sensor.
 - Promptly turn off and remove the span gas and allow the gas to dissipate.
 - Once the reading is below 50% of the calibration gas level the display indicates a countdown (up to 180 seconds depending on gas type).
 - When the countdown is finished, the calibration procedure is complete.
 - Saving/Exiting Program Changes
 - The Instrument returns to the 'Set CAL' menu. Activate the ' \uparrow or \downarrow ' buttons to select another menu or select 'QuIT' to return to normal detecting mode

The Detector is now calibrated.

The following steps are all other configurations needed for function after the system is calibrated. Reference manufacturer (Honeywell) technical manual for additional information).

To access the calibration menu, hold the end of the magnet over the switch located at the top center of the detector display ' ν ' for at least 3 seconds and then remove. The ' \uparrow or \downarrow ' buttons are used to navigate the menu with the ' ν ' being utilized for selecting items.

The following is a list of menus within the configuration mode. some items will require action and others will not:

- Set Calibration Execute zero/span calibration, set calibration gas level, preform span calibration.
 - Reference Section 5.1 (Acetylene Detector Calibration).
 - o Select Sensor Select the type of sensor from the sensor list. This menu is only available for the flammable / IR sensor.
 - No action required
 - Default selection of Cb-1 should be present
 - Select Gas Select the type of gas from the list. This menu is only available for flammable/ IR sensor.
 - No action Required
 - Default selection of Str-6 should be present
 - Set Range Set measuring range.

.

.

- Set range to 100%
- **Configure Inhibit** Select inhibit current, set timeout option.
 - No action required
 - Default value 'inhb 2.0 mA'
 - Default value 'time 0 m'
- Set Password Enable/disable password, set password.
 - No action required
 - Default value 'pass 0000'
- Set Calibration Interval Set calibration interval, 30 to 365 days, user configurable option to display warning.
 - No action Required
 - Default value 'inhb 180'
 - Default value 'due lcd'
- Bump Test Execute a 'bump' test to check gas response of the sensor.
 - No action required
 - Only used when performing bump test.
- Force Current Force analog output to test functionality of GD control system during system commissioning.
 - No action required
 - Default value 'Forc 4.0 mA'
- o Set Alarms Set alarm 1, alarm 2 levels, functionality and operation (none/falling/rising).
 - Action required Set the following:
 - 'AL1 25%'
 - 'AL1 rise'
 - 'AL2 50%'
 - 'AL2 rise'
- Set Relays Set relay 1,2,3 (alarm 1, alarm 2, fault, and inhibit) and action (energized/de-energized).
 - Action required Set the following:
 - 'rly1 AL1'
 - 'rly1 Enrg'
 - 'rly2 AL2'
 - 'rly2 Enrg'
 - 'rly3 flt'
 - 'rly3 enrg'
 - Relay Operation Configure relay on delay time, relay off delay time and latch/non-latch.
 - No action required
 - Default value 'rly on 0'
 - Default value 'rly off 0'
 - Default value 'Ltch no'
- Set Location Set location (or TAG number).
 - No action required

.

- Default value 'Loc 0000'
- Set Temperature Unit Change temperature display unit, Celsius or Fahrenheit.
 - Action required Set the following:
 - 'temp °F'
- o Check Alarm Functions Simulate alarm situation to check the alarm system without gas present at the sensor.
 - Action required after calibration and all other configurations are made test alarm 1.

'Forc AL1'

• **Quit** – Return to detecting mode.

•

Action required - ' ν ' being utilized for returning to detecting mode.

SECTION 6

6.1 INITIAL & DAILY START UP

WARNING

BEFORE STARTING THE ACETYLENE LEAK DETECTOR SYSTEM, FOLLOW THE INSTALLATION INSTRUCTIONS AND PROCEDURES COMPLETELY. SERIOUS PERSONAL INJURY CAN RESULT IF INSTRUCTIONS ARE NOT CAREFULLY AND COMPLETELY FOLLOWED.

DO NOT REMOVE, REPAIR, OR REPLACE ANY ITEM ON THIS AUTOMATIC ACETONE SYSTEM WHILE IT IS UNDER NITROGEN PURGE.

FAILURE TO FOLLOW ALL INSTRUCTIONS MAY RESULT IN INJURY AND/OR DEATH.

Once wiring is complete, turn **ON** power to detector unit. At this point, the unit will light up green and cycle through a series of screens reviewing all data input. Once the detector runs though the built-in self-checks it will end on a screen that says, "warm 60" Fig (6.1.1) and will begin to count down sixty seconds to zero while warming up the system. Once the system is powered up, it will be in the standard detection home screen (Fig. 6.1.2).



Figure 6.1.1



Figure 6.1.2

Open the hand value above the vacuum pump to start the flow of air (Fig 6.1.3). This will now create a sample suction through the suction line. With the flow of air present, use the flow meter knob to adjust the flow to be between 1.5 - 2.0 SCFH (Fig. 6.1.4).

START UP





Figure 6.1.

The detector system is now ready for use or calibration. Reference Section 5.1 (Calibration).

6.2 POST MAINTENANCE START UP

For post maintenance startups, begin the process at Reference Section 6.1 (INITIAL & DAILY START UP).

SECTION 7

OPERATION

7.1 NORMAL OPERATION

Begin by following **Reference Section 6.1 (INITIAL & DAILY START UP).** Once the system is operating in the home detecting screen, vacuum pump is operating, and the flow meter set, the system is ready for normal operation.

During normal operation the system will continue to monitor as operators are processing cylinders across the scale at which it is installed. If a leak is detected, the pilot light will illuminate, and the alarm will sound. This warning will indicate that the sensor has detected a leak on the bottom of a cylinder. The identified cylinder will need to be removed and isolated for the correct disposition.

Once the detection cylinder is removed, the detector will continue to sample and clear the current alarm. Once the alarm is cleared the detector is reading below alarm condition, the process can continue.

Be sure to follow all recommended maintenance below Reference Section 9 (Maintenance).

SECTION 8

SHUTDOWN

8.1 Daily Shutdown

Turn the power switch to the OFF position if switch is present. Once unit powered off, close the valve directly above vacuum pump to stop the sample suction.

8.2 Extended/Maintenance Shutdown

FOLLOW ALL LOCK OUT/TAG OUT PROCEDURES WHEN PREFORMING MAINTENANCE ON EQUIPMENT.

Turn the Acetylene Leak Detector off by placing the power switch or breaker to the OFF position. Shut off the air supply to the detection system. Allow the unit to depressurize.

Disconnect the power supply to the system.

SECTION 9

9.1 Daily Checks

The following procedures should be performed daily:

- Ensure inlet air pressure is at approximately 15 psig.
- Ensure the detector panel is powered on once operations at the scale begin.
- Ensure the LEL % level is at or near zero when no cylinder is on the scale and clean air is present, if it doesn't, refer to the calibration section of this document. Reference Section 5.1 (Acetylene Detector Gas Calibration).
- Visually check the detector system vacuum pump, hoses, and piping for damage. Replace any damaged components.
- Ensure the air valves above vacuum pump are open and pulling suction when the system is in use.
- Check the scale filter for any blockage or clogs and blow out the tube with the supplied nozzle if the flow meter reads below 1 CFM. If the flow does not increase, replace the filter.

9.2 SCHEDULED MAINTENANCE

Monthly

• Ensure detector is reading and calibrated properly by preforming a bump test with calibration gas.

36 Months

- Replace catalytic flammable gas sensor (Part number 1-02-1851AR)
 - The pellistors used in the Catalytic flammable gas sensor can suffer from a loss of sensitivity when in the presence of poisons or inhibitors, e.g. silicones, sulphides, chlorine, lead or halogenated hydrocarbons. The pellistors are poison resistant to maximize the operational life of the Catalytic flammable sensor. A typical operating life, subject to the presence of poisons/inhibitors is 36 months.
 - Reference manufacturer (Honeywell) technical manual for additional information).

SECTION 10

10.1 Acetylene LEAK DETECTOR SYSTEM REPLACEMENT PARTS

The below tables represent common replacement parts for the detector system. Complete bill of materials can be found in section 3.3 and 3.4.

Reference Section 3.3 and 3.4 (System Layout - Overall & Detector Panel)

ITEM	COMPONENT ASSEMBLY- (REPLACEMENTS) 3-02-01348	REXARC PART NO.	QTY
2	VACUUM PUMP	1-02-0100A	1
9	TUBING, VINYL, 1/2"OD X 3/8"ID	1-28-0507	48″
10	TUBING, NYLON, 1/8"OD	1-02-1066	96″
11	TUBING, POLY 3/8"ODx1/4"ID	1-02-1065	72″
N/A	REPLACEMENT SENSOR	1-02-1851AR	1
N/A	SCALE BASE FILTER ASSEMBLY	1-03-0103A	1
N/A	REPLACEMENT FILTER ELEMENT	1-02-0108	1

ITEM	COMPONENT ASSEMBLY- (REPLACEMENTS) 3-02-0134-1	REXARC PART NO.	QTY
6	FLOWMETER	1-02-1526	1

10.2 HOW TO ORDER PARTS

To order parts contact Rexarc International.

When contacting a Rexarc International representative, the following information is necessary:

Ordering Customer

Order Date

System Part Number

This information can be found on the purchase order for the unit.

SECTION 11

WARRANTY

11.1 WARRANTY

Warranty per Rexarc International terms and conditions of sale.

Any modification and/or tampering with system may void manufacture warranty.

If a problem occurs, contact Rexarc International immediately.