

Ammonia Gas Detector



Instruction Manual



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Introduction

Thank you for purchasing your REED R9350 Ammonia Gas Detector. Please read the following instructions carefully before using your instrument. By following the steps outlined in this manual your meter will provide years of reliable service.

Product Quality

This product has been manufactured in an ISO9001 facility and has been calibrated during the manufacturing process to meet stated product specifications. If a certificate of calibration is required please contact the nearest authorized REED distributor or authorized Service Center. Please note an additional fee for this service will apply.

Safety

WARNING: Ammonia is a hazardous chemical. Exposure can cause respiratory irritation, burns, or asphyxiation. This device should only be operated by trained and qualified personnel.

- CAUTION: This detector is designed for specific ammonia concentration ranges. Do not use it in environments with unknown or extremely high concentrations without appropriate precautions.
- IMPORTANT: Ensure familiarity with the organization's ammonia handling and emergency response protocols before using this device.
- Inspect the detector and sampling probe for visible damage, leaks, or contamination before each use.
- Verify the calibration status of the device to ensure accurate readings.
- Ensure the battery is fully charged or replace it if necessary to avoid interruptions during operation.
- Use the detector only in well-ventilated areas. In confined spaces, ensure the use of proper ventilation equipment or consult a certified safety professional.
- Operate within the meter's specified environmental parameters.

- Avoid exposure to direct sunlight, extreme temperatures, or moisture, which may impair device performance.
- Hold the sampling probe securely and ensure it is always pointed away from others.
- Avoid directing the probe toward vents, exhaust fans, or high-velocity airflows, as these may produce inaccurate readings.
- The detector is not recommended for use in flue gas as the unit does not have a water trap nor a nox filter, and the probe will not withstand typical flue gas temperatures.
- After each use, clean the sampling probe with a soft, dry cloth.
- Store the device in a cool, dry location away from ammonia sources, sunlight, and moisture.
- Perform periodic maintenance as outlined in this manual to ensure long-term reliability.
- Never attempt to repair or modify the instrument. Dismantling the product may cause damage that will not be covered under the manufacturer's warranty. Servicing should only be provided by an authorized service center.

For safety reasons, we recommend that this unit be certified every 6 months.

Features

- 0 to 100ppm detection range with built-in pump
- Easy-to-read 2.8" (71mm) LCD color screen
- User selectable unit of measure (ppm, mg/m³)
- · Real-time clock and date stamp
- · Audible, visual, and buzzer alarms
- Telescopic Probe extends up to 3.5' (1.06m)
- · Rechargeable li-ion battery
- · Low battery indicator and auto shut-off

Included

- · Ammonia Gas Detector
- Power Adapter
- Filters
- Telescopic Probe
- · Carrying Case

Specifications

 Range:
 0 to 100ppm

 Accuracy:
 ±3.0% FS

 Resolution:
 0.1ppm

 Pump Pressure:
 90 to 110kPa

Test Run Time: ~90 seconds

General Specifications

Alarms: Yes (audible/visual/buzzer)

Unit of Measure: ppm, mg/m³

Display: 2.8" (71mm) LCD Color Screen

Max: Yes Min: Yes

Real-Time Clock and

Date Stamp: Yes Belt Clip: Yes

Max Probe Length: 3.5' (1.06m)

Autoshut off: Yes (10 mins, 30 mins, off)
Power Supply: Universal AC adapter/charger;

3.7V rechargeable battery

Battery Life: Approx. 8-10 hours
Battery Charge Time: Approx. 4-5 hours

Low Battery Indicator: Yes Product Certifications: CE

Operating Temperature: -4 to 104°F (-20 to 40°C)

Operating Humidity: 10 to 80%

Storage Temperature: -4 to 104°F (-20 to 40°C)

Storage Humidity: 10 to 80%

Dimensions: 8 x 3 x 2.75" (203 x 76 x 70mm)

Weight: 15.2oz (430g)

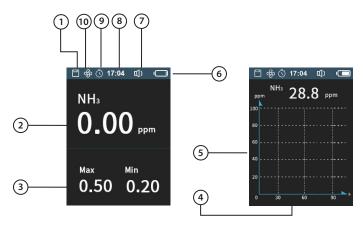
Instrument Description



- 1. Pump Inlet
- 2. LCD Screen
- 3. Return Button
- 4. Measure Button
- 5. Up Button
- 6. Left Button
- 7. Enter Button

- 8. Power Button
- 9. Down Button
- 10. Right Button
- 11. **MENU** Button
- 12. LED Alarm Indicators
- 13. Polytetrafluoroethylene (PTFE) Acrodisc Filter

Display Description



- 1. Datalogging Status Indicator
- 2. NH₃ Concentration Measurement
- MAX/MIN Measurement Readings
- 4. Measurement Time (Seconds) Indicator

- 5. Concentration Measurement
- 6. Battery Status Indicator
- 7. Audible Alarm Indicator
- 8. Time Stamp
- 9. Schedule Status Indicator
- 10. Sampling Pump Indicator

Operating Instructions

Power ON/OFF

To turn the meter on or off, press and hold the $\ensuremath{\textcircled{\sc U}}$ button for approx. 2 seconds.

Zero Calibration Mode

Note: It is necessary to periodically zero the instrument.

Warning: Zero the instrument in a clean air environment. Zeroing in a contaminated atmosphere can result in inaccurate readings and may mask potentially hazardous gas concentrations. If clean air is unavailable (e.g., near fires or in smoky areas), use zero air (purified compressed air) to establish a baseline. Zero air will not harm the sensor or disrupt its function.

Required Equipment for Zero Calibration:

Clean Air Source

- A clean, ammonia-free environment (e.g., outdoors, away from potential contaminants).
- OR: A cylinder of zero air (purified compressed air with impurities removed).

Gas Regulator

- A compatible regulator designed to control the gas flow rate from the cylinder.
- Ensure it matches the cylinder connection and allows precise flow adjustment (e.g., 0.5 L/min).

Calibration Tubing

• Tubing to securely connect the gas regulator to the detector's inlet.

Zero Calibration Procedure

Note: Ensure the PTFE Acrodisc filter is properly connected to the detector to enhance measurement accuracy and reliability. The PTFE Acrodisc acts as a barrier against contaminants like moisture, dust, and particulate matter, which could damage or interfere with the gas sensor. It helps extend the life of the sensor by preventing exposure to harsh environmental elements.

- While the detector is powered off, connect the regulator (with the gas cylinder adapter, if applicable) to the detector.
- Power on the meter.
- 3. Ensure the meter is set to the applicable unit of measure. See "Selecting Unit of Measure" section for additional details.
- 4. Press the MENU button to enter Setup Mode.
- 5. Use the and buttons to select "Zero Calibration".
- 6. When highlighted, press the button to enter the Zero Calibration parameter screen.
- 7. Adjust the regulator to a flow rate of 0.5 L/min.
- 8. Press the MEAS button to start the sampling pump while in the Zero Calibration parameter screen.
- 9. Allow the detector to sample zero air for approximately 1 minute.
- When the displayed measurement stabilizes, press the button to confirm the zero calibration.
- The detector will display "Calibration Successful" when the process is complete.
- 12. Press the MEAS button again to stop the sampling pump.
- 13. Turn off the gas flow and disconnect the tubing or adapter.
- 14. Press the button twice to exit Zero Calibration Mode and return to normal operation.

Taking Measurements without Sampling Probe

 While the meter is powered off, connect the PTFE Acrodisc filter to the pump inlet.

Note: Ensure the PTFE Acrodisc filter is properly connected to the detector to enhance measurement accuracy and reliability. The PTFE Acrodisc acts as a barrier against contaminants like moisture, dust, and particulate matter, which could damage or interfere with the gas sensor. It helps extend the life of the sensor by preventing exposure to harsh environmental elements.

- Power on the meter.
- 3. Ensure the meter is set to the applicable unit of measure. See the "Selecting Unit of Measure" section for additional details.
- 4. Place the device in the sampling location.
- 5. Activate the pump by pressing the MEAS button.
- 6. Monitor the display for ammonia concentration readings in real-time.
- 7. Deactivate the pump by pressing the MEAS button again.

Taking Measurements with Sampling Probe

 While the meter is powered off, connect the PTFE Acrodisc filter to the pump inlet.

Note: Ensure the PTFE Acrodisc filter is properly connected to the detector to enhance measurement accuracy and reliability. The PTFE Acrodisc acts as a barrier against contaminants like moisture, dust, and particulate matter, which could damage or interfere with the gas sensor. It helps extend the life of the sensor by preventing exposure to harsh environmental elements.

- Connect the probe securely to the PTFE Acrodisc filter to prevent leaks.
- 3. Power on the meter.
- 4. Ensure the meter is set to the applicable unit of measure. See the "Selecting Unit of Measure" section for additional details.

Place the probe at the desired sampling point, ensuring it is positioned securely and does not allow external air interference.

Note: Avoid submerging the probe in liquids to protect internal components.

- Maintain a steady hand to avoid introducing air turbulence that could affect readings.
- 7. Activate the pump by pressing the MEAS button.
- 8. Monitor the display for ammonia concentration readings in real-time.
- 9. Deactivate the pump by pressing the MEAS button again.

Note: After each use, clean the probe with a soft cloth dampened with water or a mild cleaning solution, ensuring no residues remain.

Troubleshooting Common Probe Issues

- Issue: No response or delayed readings.
 Solution: Check for blockages or replace the probe filter.
- Issue: Probe not securely attaching to the pump inlet.
 Solution: Reattach the probe, ensuring proper alignment.
- Issue: Erratic readings or fluctuations.
 Solution: Ensure a stable environment during sampling and inspect the probe for damage.

Setup Mode

- 1. Press the MENU button to enter Setup Mode.
- Use the and buttons to scroll through the following list of parameters. When the desired parameter is highlighted, press the button to enter the selected parameter setup screen.

Note: At any time while in the main setup mode screen, you can press the button to exit Setup Mode and resume normal operation.

Parameter	Description
Units	Select the unit of measurement (e.g., ppm, mg/m³).
Screen	Adjust the screen brightness and enable/disable sleep mode.
Logging	Configure how measurement data is recorded by the meter.
History	View or delete historical data.
Schedule	Set the duration for which the meter performs tests.
Auto Power Off	Enable or disable the automatic power-off function.
Date & Time	Set the current date and time.
Alarms	Configure alarm thresholds and types (e.g., sound, vibration).
Factory Reset	Restore the meter to its original factory settings.
Zero Cal.	Perform a zero calibration to establish a baseline.
Calibration	Perform a full calibration to ensure measurement accuracy.
Cal. Info	Displays the calibration due date.
Password	Change the default password.

Selecting the Unit of Measure (ppm, mg/m³)

Follow steps 1 through 4 once the parameter has been selected.

- 1. Press the button to activate it for editing.
- 2. Use the or buttons to select the desired unit of measure.
- 3. Press the button to confirm selection.
- 4. Press the button to return to the main setup screen.

Note: At any time while in a parameter setup screen, you can press the button twice to exit setup mode and resume normal operation.

Adjusting the Screen Brightness and Enabling/Disabling Sleep Mode

Follow steps 1 through 4 once the "Screen" parameter has been selected.

- 1. Press the button to activate the "Screen" parameter for editing.
- 2. Use the buttons to select the desired sleep time (Off), 15 sec, 30 sec, 1 min, or 10 min).
- Press the button to confirm selection.
- 4. Press the button to return to the main setup screen.

Note: At any time while in a parameter setup screen, you can press the button twice to exit setup mode and resume normal operation.

Follow steps 1 through 4 once the Brightness parameter has been selected.

- Press the button to activate the "Brightness" parameter for editing.
- 2. Use the or buttons to select the desired brightness level between 1 to 4.
- Press the button to confirm selection.
- 4. Press the button to return to the main setup screen.

Note: At any time while in a parameter setup screen, you can press the button twice to exit setup mode and resume normal operation.

Configuring Data Storage Settings

Follow steps 1 through 12 once the "Logging" parameter has been selected.

- 1. Press the button to activate the "Type" parameter for editing.
- Use the or buttons to select the desired storage mode between "Alarm" and "Timer".

Note:

- Alarm: Data is stored only when the concentration reaches the set alarm point.
- Timer: Data is stored at regular intervals based on the defined cycle.

- Press the button to confirm selection.
- Use the and buttons to select the "Sample Rate" parameter.
- When "Cycle" is highlighted, press the button to activate for editing.
- Use the or buttons to adjust the storage interval (e.g., seconds or minutes).
- 7. Press the button to confirm selection.
- 8. Use the and buttons to select the "Status" parameter.
- When "Status" is highlighted, press the button to activate for editing.
- Use the or buttons to toggle between Enabled and Disabled.
- 11. Press the button to confirm selection.
- 12. Press the button to return to the main setup screen.

Note: At any time while in a parameter setup screen, you can press the button twice to exit setup mode and resume normal operation.

History

The History function allows you to query, view, and manage recorded data.

Follow steps 1 through 9 once the History parameter has been selected to set Query Start/End Times and view data:

- 1. Use the and buttons to navigate to the desired parameter.
- Press the button to activate the Start Time or End Time parameter for editing.
- 3. Use the or buttons to navigate between date/time fields.
- Use the and buttons to adjust the values (e.g., hours, minutes).
- 5. Press the button to confirm the start or end time settings.
- Highlight "Record" and press the button to start the querying data.

Note: All stored data within the specified range will be displayed, showing:

- Date and Time
- Concentration Value
- Alarm Type (if triggered)
- Use the buttons to scroll through multiple pages of data, if applicable.
- 8. To delete all saved records, highlight "Delete Data" and press the button to delete all saved records.

Important: Data deletion is irreversible, so ensure the records are no longer needed before proceeding.

9. Press the button to return to the main setup screen.

Note: At any time while in a parameter setup screen, you can press the button twice to exit setup mode and resume normal operation.

Sampling Time

The Timing Measurement function allows you to Schedule specific start and end times for automated measurements.

Follow steps 1 through 9 once the Schedule parameter has been selected to set the Start and End Times:

- Use the and buttons to navigate to navigate to the desired parameter.
- Press the button to activate the Start Time or End Time parameter for editing.
- 3. Use the or buttons to navigate between the time fields (e.g., hours, minutes).
- 4. Use the and buttons to adjust the values.
- 5. Press the button to confirm the setting for each field.
- 6. Highlight Status and press the button to activate the setting.
- 7. Use the and buttons to toggle between Enabled and Disabled.
- Enable: The measurement will start at the configured Start Time and stop at the configured End Time.
- Disable: The timing measurement function will remain inactive.

- 8. Press the button to save the selection.
- 9. Press the button to return to the main setup screen.

Note: At any time while in a parameter setup screen, you can press the button twice to exit setup mode and resume normal operation.

Auto Power-Off

Follow steps 1 through 4 once the Auto Power Off parameter has been selected:

- 1. Press the button to activate it for editing.
- Use the or buttons to choose between1 hour, 30 min., 10 min. or Off.
- 3. Press the button to save the selection.
- 4. Press the button to return to the main setup screen.

Note: At any time while in a parameter setup screen, you can press the button twice to exit setup mode and resume normal operation.

Date and Time

Follow steps 1 through 7 once the Date & Time parameter has been selected:

- 1. Use the and buttons to navigate to the desired parameter.
- 2. Press the button to activate it for editing.
- 3. Use the or buttons to navigate between fields (e.g., year, month, day, hour, minute).
- Use the and buttons to adjust the value of the selected field.
- 5. Press the button to save the selection.
- 6. Repeat steps 3-5 for each applicable field.
- 7. Press the button to return to the main setup screen.

Note: At any time while in a parameter setup screen, you can press the button twice to exit setup mode and resume normal operation.

Alarm Setup

Follow steps 1 through 23 once the Alarms parameter has been selected:

- 1. Use the and buttons to navigate to Alarm Values.
- 2. Press the button to select the parameter.
- 3. Press the button again to activate it for editing.
- Use the buttons to switch between Low Limit and High Limit alarm values.
- 5. Press the button to select the alarm value for editing.
- 6. Use the or buttons to move between digits in the value.
- 7. Use the and buttons to to modify each digit.
- Press the button to save the changes.
- 9. Repeat steps 3-8 for any other applicable Alarm Values.

Note:

- AL Alarm: Activates when the measured value exceeds the low limit (Slow Alarm Sound).
- AH Alarm: Activates when the measured value exceeds the high limit (Fast Alarm Sound).
- 10. Press the button to return to the Alarms setup screen.
- 11. Use the and buttons to navigate to Alarm parameters.
- 12. Press the button to select the parameter.
- 13. Press the button again to activate it for editing.
- 14. Use the or buttons to select the desired alarm type:
- Sound+Light
- Vibrate
- Sound+Light+Vibrate
- None
- 15. Press the button to save the selection.
- 16. Press the button to return to the Alarms setup screen.
- 17. Use the and buttons to navigate to Alarm Mode.
- 18. Press the button to select the parameter.

- 19. Use the and buttons to navigate to the "Alarm Status" mode.
- 20. Press the button to activate it for editing.
- Use the or buttons to toggle between Enabled and Disabled.
- 22. Press the button to save the selection.
- 23. Press the Dutton to return to the main setup screen.

Note: At any time while in a parameter setup screen, you can press the button twice to exit setup mode and resume normal operation.

Factory Reset

Follow steps 1 through 5 once Factory Reset has been selected:

- 1. Press the button to activate it for editing.
- Use the or buttons to select the reset option.
- Once the reset is complete, the meter will display "Reset Successful".
- 4. Press the button to confirm the factory reset.
- 5. Press the button to return to the main setup screen.

Note: At any time while in a parameter setup screen, you can press the button twice to exit setup mode and resume normal operation.

Zero Calibration

See the "Zero Calibration Procedure" section for detailed instructions.

Calibration

See the "Calibration Procedure" section for detailed instructions.

Calibration Information

Enter the Calibration Information page to view the time remaining until the next calibration is due.

Follow steps 1 through 8 once Cal. Info. has been selected:

- 1. Press the button to enter the calibration information screen.
- 2. A password prompt will appear on the screen.
- Enter the current password (default is "8888") to enter the Calibration screen.

- Press the button to activate the calibration date for editing if required.
- Use the or buttons to navigate between fields (e.g., Day, Month, Year.)
- Use the or buttons to adjust the value of the selected field.
- 7. Press the button to save the selection.
- 8. Press the button to return to the main setup screen.

Note: At any time while in a parameter setup screen, you can press the button twice to exit setup mode and resume normal operation.

Password

Follow steps 1 through 11 once Password has been selected:

- 1. Press the button to activate password editing.
- 2. A password prompt will appear on the screen.
- 3. Enter the current password before setting a new one.

Note: The default password is 8888.

- 4. Use the or buttons to navigate between fields.
- 5. Use the and buttons to adjust the values.
- Press the button to confirm the current password and enter the password change screen.
- 7. Press the button to activate the new password field.
- 8. Use the or buttons to move between digits in the value.
- 9. Use the and buttons to to modify each digit.
- 10. Press the button to save the new password.
- 11. Press the button to return to the main setup screen.

Note: At any time while in a parameter setup screen, you can press the button twice to exit setup mode and resume normal operation.

Calibration Procedure

This section describes the R9350 in Calibration Mode to perform a span adjustment on one channel at a time using single calibration.

Note: After calibration is complete, the meter defaults to a 180-day schedule for the next calibration.

Caution: Before each day's use, perform a zero calibration and test the sensitivity of the NH3 range using a known concentration of ammonia target gas equivalent to 25–50% of the full-scale concentration. Accuracy must be ≤±3%FS. If accuracy is outside this range, follow the calibration instructions provided below.

Always perform daily zero calibration tests as outlined in the previous section. Additionally, develop a calibration schedule tailored to the application that incorporates all required tests and calibrations.

Required Equipment for Calibration:

Ammonia Gas Cylinder

Gas Regulator

- A compatible regulator designed to control the gas flow rate from the cylinder.
- Ensure it matches the cylinder connection and allows precise flow adjustment (e.g., 0.5 L/min).

Calibration Tubing

A tubing to securely connect the gas regulator to the detector's inlet.

Note: Ensure the PTFE Acrodisc filter is properly connected to the detector to enhance measurement accuracy and reliability.

- While the detector is powered off, connect the regulator (with the gas cylinder adapter, if applicable) to the detector.
- 2. Power on the meter.
- 3. Confirm the meter is set to the applicable unit of measure. See the "Selecting Unit of Measure" section for additional details.
- 4. Press the MENU button to enter Setup Mode.

- 5 Use the and buttons to select "Calibration".
- 6. When highlighted, press the button to enter the Calibration parameter screen.
- 7. A password prompt will appear on the screen.
- Enter the current password (default is "8888") to enter the Calibration screen.
- 9. Use the or buttons to navigate between fields.
- 10. Use the and buttons to adjust the values
- 11. Press the button to save the selection.
- 12. Use the buttons to select the desired Calibration level (20ppm, 50ppm, or 80ppm) for single calibration.
- For multiple-point calibration, proceed sequentially with Level 1 (20ppm), Level 2 (50ppm) and Level 3 (80ppm).
- 14. Adjust the regulator to a flow rate of 0.5 L/min.
- 15. Press the MEAS button to start the sampling pump.
- 16. Allow the detector to stabilize for 2-3 minutes.
- 17. Once the displayed measurement stabilizes at the selected calibration level, press the button to save the calibration.
- 18. The detector will display "Calibration Successful" when completed.
- 19. For multiple-point calibration, repeat steps 13-14 for the remaining calibration levels.
- 20. Press the MEAS button again to stop the sampling pump.
- 21. Turn off the gas flow and disconnect the tubing or adapter.
- 22. Press the button twice to exit Calibration mode and return to normal operation.

Charging the Battery

When the low battery icon appears on the LCD display, recharge the battery. Plug the power adapter into the input jack at the bottom of the meter compartment, then connect the other end of the adapter to a power outlet.

Applications

- Industrial safety monitoring in ammonia storage and handling areas
- · Refrigeration and cooling system inspections
- Agricultural and livestock operations to detect ammonia in confined spaces
- · Chemical manufacturing and processing facilities
- Wastewater treatment plants for monitoring ammonia emissions
- Research and laboratory environments requiring precise ammonia detection

Product Care

To keep your instrument in good working order we recommend the following:

- Store your product in a clean, dry place.
- Change the battery as needed.
- If your instrument isn't being used for a period of one month or longer please remove the battery.
- Clean your product and accessories with biodegradable cleaner. Do not spray the cleaner directly on the instrument. Use on external parts only.

Product Warranty

REED Instruments guarantees this instrument to be free of defects in material or workmanship for a period of one (1) year from date of shipment. During the warranty period, REED Instruments will repair or replace, at no charge, products or parts of a product that proves to be defective because of improper material or workmanship, under normal use and maintenance. REED Instruments total liability is limited to repair or replacement of the product. REED Instruments shall not be liable for damages to goods, property, or persons due to improper use or through attempts to utilize the instrument under conditions which exceed the designed capabilities. In order to begin the warranty service process, please contact us by phone at 1-877-849-2127 or by email at info@reedinstruments.com to discuss the claim and determine the appropriate steps to process the warranty.

Product Disposal and Recycling



Please follow local laws and regulations when disposing or recycling your instrument. Your product contains electronic components and must be disposed of separately from standard waste products.

Product Support

If you have any questions on your product, please contact your authorized REED distributor or REED Instruments Customer Service by phone at 1-877-849-2127 or by email at info@reedinstruments.com.

Please visit www.REEDInstruments.com for the most up-to-date manuals, datasheets, product guides and software.

Product specifications subject to change without notice.

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REED INSTRUMENTS

TEST & MEASURE WITH CONFIDENCE



REED

INSTRUMENTS



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