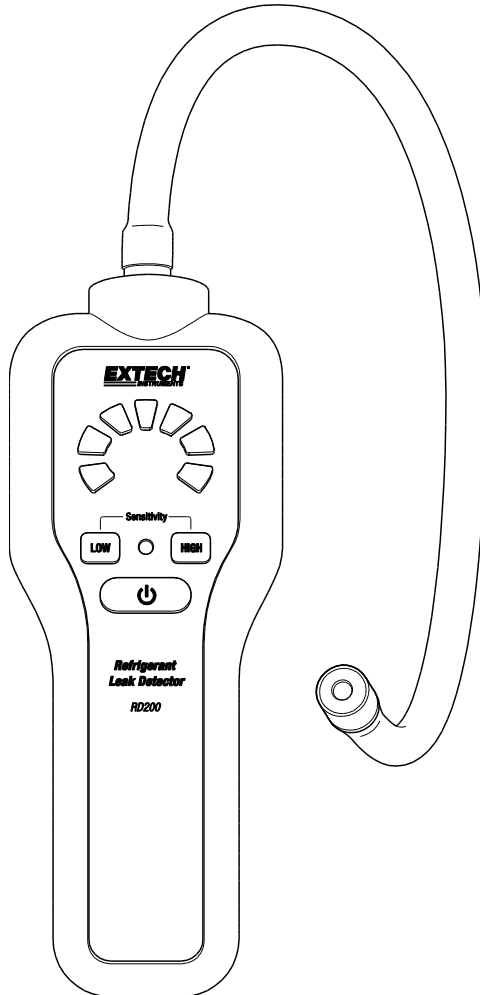


# Refrigerant Leak Detector

## Model RD200



## ***Introduction***

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Congratulations on your purchase of the Extech RD200 Refrigerant Leak Detector. This handheld meter detects leaks for SF6 gas, all types of HFC, CFC, and HCFC refrigerants as well as most compounds containing halogen.

We ship this meter fully tested and calibrated and, with proper use, it will provide years of reliable service. Please visit our website ([www.extech.com](http://www.extech.com)) to check for the latest version of this User Manual and for Customer Support.

## ***Features***

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- Detects standard refrigerants using a replaceable heated diode sensor (part no. RD200-S)
- Audible and visual alerts
- Seven (7) visual leakage level LED indicators (color coded)
- Low and High selectable sensitivity levels
- Battery status LED indicator
- Test solution (included) allows the user to check the condition of the sensor
- 50 cm (19.7") flexible gooseneck probe

## ***Safety***

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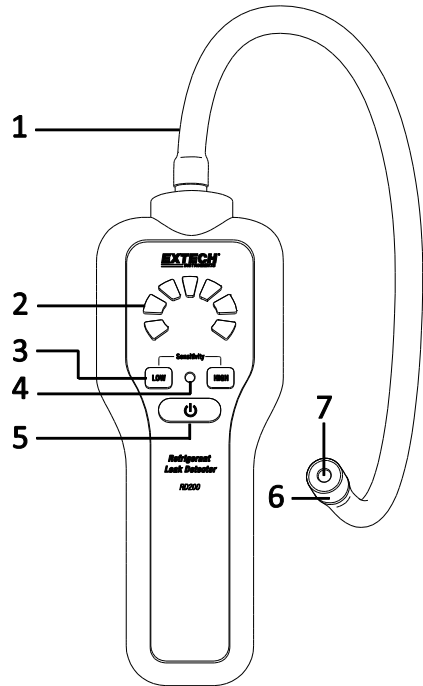
Please read the safety information carefully before attempting to operate the meter. Failure to do so could cause personal injury or damage to the meter.

- Please read this manual carefully to ensure safe and correct use.
- Do not attempt to repair this device. Please return the unit if it requires service.
- Do not force the flexible probe to bend over its angle limit. Doing so can damage the device.
- Do not subject the probe tip to shock or severe vibration.
- Open the provided test bottle only to check the sensor as detailed in this manual. Tightly close and safely store the bottle when not in use.
- Do not use this device near fire or in flammable/explosive environments.
- Do not use organic solvents to clean the meter.

## Meter Description

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1. Flexible probe shaft
2. Color-coded LED level indicators
3. Sensitivity select buttons (Low, High)
4. Battery status LED
5. Power ON/OFF button
6. Removable sensor access collar
7. Heated diode sensor



## Operation

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**Note:** Power OFF the system under test before attempting to find leaks.

### Powering the Meter

1. Short press the ON/OFF button (5) to power the meter. Replace the battery if the meter does not switch ON or if the low battery LED (4) glows red.
2. While powering on, the leak-level LEDs (2) will light in sequence (left to right) and the start-up tone will sound once.
3. The meter will start heating the sensor (7) during a 2 minute warm-up period (the leak-level LEDs will continue to light in sequence during the warm-up).
4. After the warm-up, the audible tone will sound twice indicating that the detector is ready to find leaks.
5. Press and hold power button (5) for 2 seconds to turn off the meter. The meter switches off automatically after 10 minutes of inactivity.
6. The battery status indicator (4) glows red when the battery requires replacement.

## Testing for Leaks in Air Conditioning

1. Add refrigerant to the air conditioning system in order to maintain a pressure of 340Kpa (50PSI). Leaks may go undetected if the ambient temperature is < 15°C (59°F), because of insufficient pressure.
2. Before testing, conduct a visual and audible inspection of the entire refrigerating system including all pipes, hoses, and components. Look for leaks, damage, or corrosion. Listen for the sound of air escaping.
3. Set the sensitivity level to high by pressing the High sensitivity button (red LEDs will briefly flash) and then slowly pass the probe near all potential sources of leaks and gage the meter's response by observing the color-coded leak-level LEDs and listening for the audible tones. Always make measurements along a continuous route for best results.
4. The two green LEDs represent the absence of a leak or a very small leak, the two yellow LEDs represent a moderate leak, and the three red LEDs represent the detection of a large leak.
5. Once an area of leakage is detected set the meter to low sensitivity mode by pressing the Low sensitivity button (green LEDs will briefly flash) and inspect the area of the leak again to determine the precise location.
6. The distance of the sensor (7) to the surface of the component under test should be 5mm (0.2") or nearer. Move the probe slowly, no more than 25~50mm/second (1 to 2"/second). See the Measurement Considerations section for more information.

**Note:** To pinpoint a large leak more effectively, use compressed air on the suspected area of the leak to help determine the precise location.

## Testing for Leaks in an Evaporator Core

1. When checking for a leak in an evaporator core, adjust the air conditioning blower to the highest setting for 15 seconds, and then power it OFF.
2. Wait approximately 10 minutes for refrigerants to accumulate inside the air conditioning evaporator.
3. Insert the sensor into the resistance block of the fan (if there is no water) or place it at the opening of the nearest heating, ventilating, or air conditioning container of the evaporator.
4. Check for visual and audible alarms to determine if there is a leak.

## Measurement Considerations

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- If you do not detect a leak, try the low sensitivity mode (press Low sensitivity button) and check again.
- If there is wind in the area of test, shielding the suspected leak area from the wind will yield better results.
- Do not allow moisture or solvent near the sensor, this may introduce false alarms.
- When you suspect a large leak, using compressed air in the area of the leak may help determine the exact location of the leak.
- To verify leaks, conduct tests several times in succession.

# Maintenance

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## Cleaning

1. Wipe the meter housing with a damp, soft cloth. Use only mild soap and water.
2. Never use organic solvents to clean the meter (such as thinner, benzene, etc.) as they can damage the sensor.
3. Clean the sensor area with a dry cloth or use compressed air to clear away debris.

## Battery Replacement

When the low battery LED (4) glows red, the 9V battery must be replaced.

1. The battery compartment is located on the rear of the meter. To access the battery compartment, carefully remove the meter's protective rubber jacket.
2. Remove the Phillips head screw to open the battery compartment.
3. Replace the 9V battery observing correct polarity.
4. Secure the battery compartment and replace the protective jacket before operating the meter.



Never dispose of used batteries or rechargeable batteries in household waste.

As consumers, users are legally required to take used batteries to appropriate collection sites, the retail store where the batteries were purchased, or wherever batteries are sold.

**Disposal:** Do not dispose of this instrument in household waste. The user is obligated to take end-of-life devices to a designated collection point for the disposal of electrical and electronic equipment.

## Checking the Probe Condition with the Test Solution

The test bottle provided contains an ethanol solution that emits a gas when the bottle is opened. If the sensor is in good condition, it will detect the gas and the meter will provide audible and visual alerts. If alerts do not occur, the sensor should be replaced immediately. Always tightly seal and safely store the test bottle when not in use.

## Probe Replacement

The sensor (7) is located at the tip of the gooseneck probe (1), in the cavity underneath the removable protective collar (6).

The sensor plugs into a 3-conductor connector, in a specific orientation where the black wire, on the connector, aligns with the black 'dot' on the sensor. The steps below outline the replacement procedure:

1. Switch the meter OFF.
2. Unscrew the probe tip collar (6) in a counter-clockwise direction and remove the collar.
3. Remove the existing diode sensor (7) by carefully gripping it with a small pliers, or similar tool, and gently pulling the sensor out of the cavity until the sensor's connector is exposed. Use caution to avoid damaging the wires to the connector.
4. Disconnect the existing sensor from the 3-conductor connector observing the correct orientation (black wire on connector aligns with black 'dot' on sensor).
5. Replace the sensor in the proper orientation and re-attach the protective collar.
6. Do not switch the meter ON until the sensor and collar are securely in place.

# Specifications

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## General Specifications

Detectable Refrigerants	SF6 electrical equipment and gas, HFC, CFC, HCFC refrigerants, HFC (R134 and R123), halogen gas, ethylene, tetrafluoroethylene, trichloroethylene, and most compounds containing halogen.
Sensor	Replaceable heated diode gas detector (part no. RD200-S)
Accuracy	< 2.8g/year (0.1oz./year)
Sensitivity Levels	Low 30g/year (1.05oz./year) High 6g/year (0.2oz./year)
Test Bottle Solution	1:1 ethanol (95%) and distilled water
Warm up Time	2 minutes (approx.)
Response Time	Instantaneous
Auto Power OFF	Automatic shut off after 10 minutes
Low Battery Indication	Battery status LED glows red
Power Supply	9V Battery (rear compartment under protective jacket)
Battery Life	30 hours of normal use
Operating Conditions	0°C to 50°C (32°F to 122°F) <80%RH
Storage Conditions	-10°C to 80°C (14°F to 176°F) <70%RH
Length: Flexible Gooseneck only	50.2cm (19.8")
Length: Gooseneck w/ Sensor	52cm (20.5")
Meter Dimensions / Weight	185 x 72 x 35mm (7.3 x 2.8 x 1.4") / 305g (10.8 oz.)
Safety	CE; Designed to SAE J1627

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