Rogvoc RMG4DB-BK

Rogvoc Digital Manifold Gauge RMG4DB-BK User Manual

Model: RMG4DB-BK | Brand: Rogvoc

1. Introduction

This manual provides comprehensive instructions for the safe and effective operation, setup, and maintenance of your Rogvoc Digital Manifold Gauge RMG4DB-BK. This device is designed for professionals and enthusiasts working with HVAC and refrigeration systems, offering precise measurements for various refrigerants.

2. Product Overview and Key Features

The Rogvoc Digital Manifold Gauge is an advanced tool for HVAC system analysis. It integrates multiple functions to streamline refrigerant handling and system diagnostics.

- **Digital Manifold Gauge Set:** Features for refrigerant filling, dual pressure and air tightness testing, vacuum degree testing, temperature measurement, and automatic condensation/evaporation pressure calculations.
- **Extensive Refrigerant Data:** Built-in data for 93 types of refrigerants, allowing for versatile application and accurate readings.
- **High Precision:** Utilizes a 32-bit digital precision data acquisition unit for stable and accurate pressure measurements.
- **Multifunctionality:** Beyond basic pressure/temperature tests, it performs vacuum tests to measure vacuum pressure values and percentages, aiding in pipeline air tightness assessment and leak detection.
- **Convenience Design:** Includes a visual window for observing refrigerant filling status, multiple switchable pressure and temperature units, a TFT LCD display for clear data reading in various lighting conditions, and a back hook for easy placement during use.

Figure 2.1: Rogvoc Digital Manifold Gauge and included accessories.

Figure 2.2: The gauge display illustrating various working modes including Evaporation Temperature (EV), Condensation Temperature (CO), Low Pressure (LP), and High Pressure (HP).

3. Package Contents

Verify that all items are present in the package:

- Digital Manifold Gauge (1 unit)
- 5 FT Colored Hoses (3 units: Red, Yellow, Blue)
- Thermometer Clamps (2 units)
- Replacement Valve Core
- Toolbox/Carrying Case
- AA Batteries (3 units, pre-installed or separate)

Figure 3.1: All components included in the Rogvoc Digital Manifold Gauge kit, neatly arranged in its carrying case.

4. Setup

1. **Battery Installation:** Open the battery compartment on the back of the gauge. Insert 3 AA batteries, ensuring correct polarity. Close the compartment securely.
2. **Hose Connection:** Connect the colored hoses to the appropriate ports on the manifold gauge. The hoses feature knob handles for easier and more secure tightening, which also helps protect hands from refrigerant exposure. Ensure all connections are tight to prevent leaks.
3. **Thermometer Clamp Attachment:** Attach the two thermometer clamps to the desired refrigerant lines for temperature measurement. Ensure good contact for accurate readings.

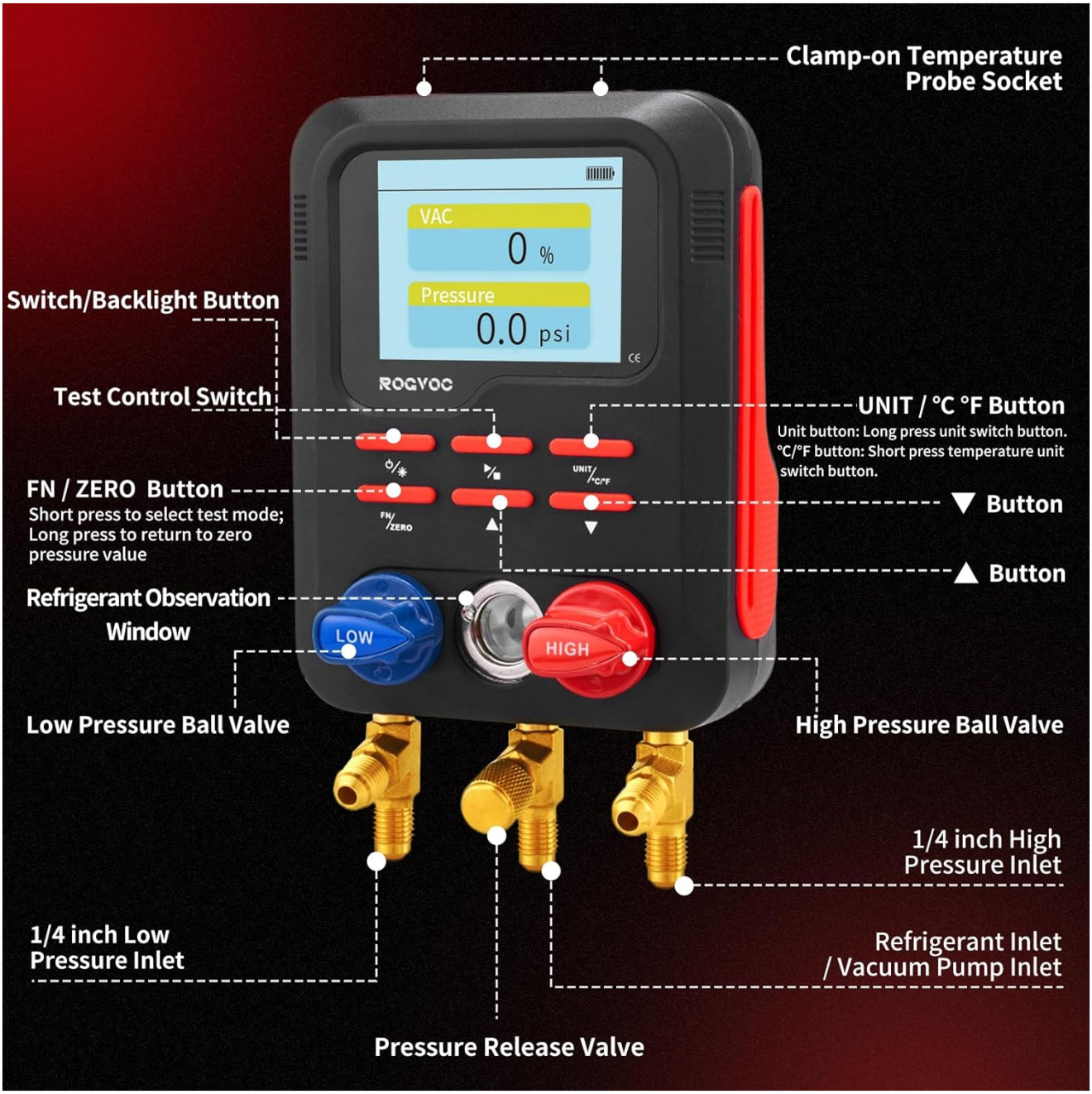

Figure 4.1: Detailed diagram showing the various parts of the digital manifold gauge, including clamp-on temperature probe sockets, buttons, refrigerant observation window, and pressure inlets.

5. Operating Instructions

5.1 Power On/Off and Display

- Press the **Switch/Backlight Button** to power on the device.
- The TFT LCD display will illuminate, showing current readings.
- Press and hold the **Switch/Backlight Button** to power off.
- A short press of the **Switch/Backlight Button** will toggle the backlight.

5.2 Unit Selection

- **Pressure Units:** Long press the **UNIT/°C/°F Button** to cycle through available pressure units (Kpa, Mpa, bar, inHg, PSI).
- **Temperature Units:** Short press the **UNIT/°C/°F Button** to switch between Celsius (°C) and Fahrenheit (°F).

5.3 Refrigerant Selection

- The gauge has 93 built-in refrigerant types. Use the dedicated refrigerant selection buttons (refer to the device interface for specific labels) to choose the appropriate refrigerant for your system (e.g., R22, R410A, R134A, 1234YF).

5.4 Pressure and Temperature Testing

- Connect the hoses to the high and low-pressure ports of the HVAC system.
- Ensure thermometer clamps are correctly attached to the refrigerant lines.
- The display will show real-time high pressure (HP), low pressure (LP), evaporation temperature (EV), and condensation temperature (CO).

5.5 Vacuum Testing

- Connect the gauge to the system and a vacuum pump.
- Short press the **FN / ZERO Button** to select the vacuum test mode.
- The display will show the vacuum pressure value and percentage.
- Monitor the readings to assess the air tightness of the pipeline.

5.6 Refrigerant Filling

- Follow standard HVAC procedures for refrigerant charging.
- The visual window allows you to observe the refrigerant flow during filling.
- Monitor pressure and temperature readings to ensure correct charge levels.

5.7 Leak Test

- After evacuating or charging, monitor the pressure over a period.
- The gauge can record the duration of the leak test and display pressure differences to help identify leaks.

Figure 5.1: Features such as the refrigerant visual window, backlight for low-light conditions, and the convenient back hook for hands-free operation.

6. Maintenance

- **Cleaning:** Wipe the gauge and hoses with a soft, damp cloth. Do not use abrasive cleaners or solvents.
- **Storage:** Store the device and accessories in the provided toolbox in a cool, dry place away from direct sunlight and extreme temperatures.
- **Hose Inspection:** Regularly inspect hoses for cracks, wear, or damage. Replace damaged hoses immediately to ensure safety and prevent refrigerant leaks.
- **Battery Replacement:** Replace batteries when the low battery indicator appears on the display.
- **Sensor Calibration:** While the device is factory calibrated, if you suspect inaccurate readings, consult customer support for potential recalibration procedures.

7. Troubleshooting

Problem	Possible Cause	Solution
Gauge not powering on	Dead or incorrectly installed batteries.	Check battery polarity; replace with fresh AA batteries.
Inaccurate pressure readings	Incorrect refrigerant selected; sensor issue; extreme temperature conditions.	Verify refrigerant selection; ensure stable operating temperature; contact customer support if issue persists.
Hoses leaking or coming loose	Connections not tightened sufficiently; worn hose seals.	Ensure all hose connections are securely tightened using the knob handles; inspect and replace hose seals if damaged.
Difficulty achieving full vacuum	System leak; faulty vacuum pump; sensor reading error.	Perform a leak test on the system; check vacuum pump functionality; verify hose connections; if sensor is suspected, contact support.
Display is dim or unreadable	Backlight off; low battery.	Short press the **Switch/Backlight Button** to activate backlight; replace batteries.

8. Specifications

Figure 8.1: Dimensions of the Rogvoc Digital Manifold Gauge.

Parameter	Value
Pressure Test Range	0 - 6000 Kpa
Pressure Resolution	1 Kpa
Pressure Accuracy	± 0.5% (FS)
Maximum Overload Pressure	10000 Kpa (10 Mpa / 100 bar)
Vacuum Test Range	-101 Kpa - 0 Kpa
Vacuum Resolution	1 Kpa
Temperature Test Range	-40°F to 302°F (-40°C to 150°C)
Dimensions (L x W x H)	9.5 x 2 x 5.7 inches (24.1 x 5.1 x 14.5 cm)
Item Weight	6.62 pounds (3.01 kg)

Parameter	Value
Batteries	3 AA batteries (included)
Material	Plastic

Figure 8.2: Summary of key specifications for the Rogvoc Digital Manifold Gauge.

9. Customer Support

For any questions regarding the Rogvoc Digital Manifold Gauge RMG4DB-BK, please contact our customer support team. We are available 24/7 to assist you and will respond within 24 hours.
Please refer to your product packaging or the official Rogvoc website for specific contact information.