

MR CARTOOL L205

MRCARTOOL L205 Digital Refrigerant Manifold Gauge User Manual

Model: L205

1. INTRODUCTION

The MRCARTOOL L205 Digital Refrigerant Manifold Gauge is an advanced tool designed for the installation, inspection, and maintenance of various refrigeration systems, including automotive and household air conditioners, refrigerators, and cold storage units. This device provides precise measurements for pressure, vacuum, and temperature, supporting a wide range of refrigerants.

2. SAFETY INFORMATION

- Always wear appropriate personal protective equipment (PPE), including safety glasses and gloves, when working with refrigerants.
- Ensure proper ventilation in the work area to prevent the accumulation of refrigerant vapors.
- Do not expose the device to extreme temperatures, moisture, or direct sunlight.
- Handle refrigerant cylinders with care and follow all manufacturer guidelines.
- Disconnect the device from the refrigeration system before performing any maintenance or cleaning.
- This device requires 3x 1.5V AA batteries for operation. Ensure batteries are installed correctly.

3. PRODUCT OVERVIEW

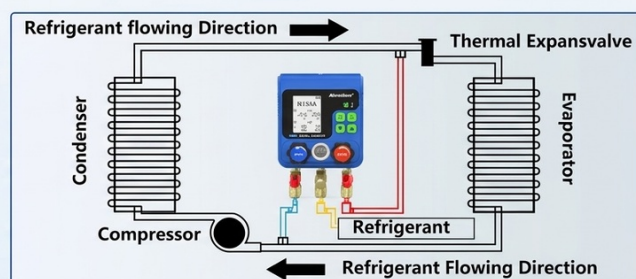
The L205 Digital Manifold Gauge features a robust design with an intuitive interface for efficient operation. It includes high-precision sensors and a clear display for real-time data.



Figure 3.1: MRCARTOOL L205 Digital Manifold Gauge highlighting features like 92 refrigerant database, high/low-pressure test, high-precision sensors, pressure leakage test, vacuum pressure test, refrigerant filling, multiple unit switching, and HD display.

REPLISSAGE DE RÉFRIGÉRANT ET INSPECTION DE PRESSION

- 1** Fermez la vanne bleue et la vanne rouge.
- 2** Allumez l'instrument. Assurez-vous ensuite que l'écran LCD affiche l'état du test de pression. Appuyez brièvement sur le bouton [FN(ZERO)] pour basculer.
- 3** Appuyez sur le bouton [UNIT (°C/°F)] pour sélectionner le type de réfrigérant. Appuyez sur le bouton [▲] pour sélectionner le réfrigérant cible.
- 4** Lorsque l'instrument est allumé, il peut y avoir 10 chiffres dans la zone de haute et basse pression. À ce moment, vous devez appuyer brièvement sur le bouton [FN ZERO] jusqu'à ce qu'il revienne à zéro.
- 5** Connectez l'instrument au système de réfrigération selon le tableau ci-dessous. Faites attention à la direction du flux de réfrigérant (droite).
- 6** Ouvrez la vanne bleue et la vanne rouge.
- 7** Lorsque le système de réfrigération s'arrête, allumez la vanne haute pression (vanne rouge) et la vanne basse pression (vanne bleue).
- 8** Observez la valeur de pression sur l'instrument.
- 9** Pour le système de réfrigération, allumez la vanne basse pression (vanne bleue) pour remplir le réfrigérant lentement.



10 Fermez d'abord le système de réfrigération, assurez-vous que toutes les vannes sont fermées, puis déconnectez l'instrument. Veuillez vous assurer que le réfrigérant est rempli au niveau approprié. Si vous ajoutez trop de réfrigérant, cela peut endommager le système de réfrigération. Si vous ajoutez trop peu de réfrigérant, le système de réfrigération peut ne pas fonctionner correctement. Allumez ensuite le réfrigérant lentement.



Le fonctionnement de remplissage de différents équipements ou réfrigérants peut varier. Veuillez lire attentivement les exigences de fonctionnement spécifiques pertinentes pour le remplissage, afin d'éviter tout dommage pour l'utilisateur ou l'équipement causé par un fonctionnement inapproprié !!!

Figure 3.2: Detailed view of the L205 gauge with labeled parts (screen, function buttons, refrigerant sight glass, low-pressure valve, high-pressure valve, pressure relief valve, low-pressure inlet 1/4 inch, high-pressure inlet 1/4 inch, refrigerant/vacuum pump inlet, battery compartment, hook) and product parameters (pressure test range, resolution, accuracy, vacuum test range, resolution, temperature test unit, overload limit, power supply, product size).

4. SETUP

4.1. Unpacking and Initial Inspection

Carefully remove the digital manifold gauge from its packaging. Inspect the device for any signs of damage. The package includes the digital manifold gauge unit. Hoses and lines are not included and must be acquired separately.

4.2. Battery Installation

1. Locate the battery compartment on the back of the unit (refer to Figure 3.2).
2. Open the battery compartment cover.
3. Insert 3x 1.5V AA batteries, ensuring correct polarity.
4. Close the battery compartment cover securely.

4.3. Power On and Zeroing

1. Press the power button to turn on the device.
2. Before using different functions or reusing the device, it is crucial to reset the data to zero. Long press the 'ZERO' button to reset the device and ensure data accuracy.

5. OPERATING INSTRUCTIONS

5.1. Refrigerant Selection

The L205 has a built-in database of 92 refrigerants. You can select the appropriate refrigerant type for your system.

BASE DE DONNÉES INTÉGRÉE DE 92 RÉFRIGÉRANTS Prend en charge la détection de plusieurs réfrigérants, adapté à divers scénarios de maintenance, et répond aux exigences de différentes régions.											
R11	R113	R114	R115	R116	R12	R410A	R410B	R411A	R411B	R412A	R413A
R123	R1234	R124	R125	R1270	R13	R414A	R414B	R415A	R415B	R416A	R417A
R134A	R14	R141B	R142B	R143A	R152A	R418A	R419A	R420A	R421A	R421B	R422A
R170	R21	R218	R22	R227EA	R23	R422B	R422C	R422D	R423A	R424A	R425A
R236EA	R245CA	R245FA	R290	R32	R401A	R426A	R427A	R428A	R438A	R448A	R449A
R401B	R401C	R402A	R402B	R403A	R403B	R452A	R50	R500	R501	R502	R503
R404A	R405A	R406A	R407A	R407B	R407C	R504	R507A	R508A	R508B	R509A	R600
R407D	R407E	R408A	R409A	R409B	R41	R600A	R744(CO2)				


1. La pression d'essai maximale du R744 (CO2) est de 50 bars


2. La tolérance de pression maximale est applicable à R717 et autres réfrigérants ammoniac 50 bar

Figure 5.1: The L205 supports a database of 92 refrigerants, including R11, R12, R22, R32, R134A, R410A, R600, and many others.

Note: The maximum test pressure for R744 (CO2) is 50 bar. Not applicable to R717 and other Ammonia refrigerants.

5.2. Dual-Channel Measurement (EV/CO & LP/HP)

The device can simultaneously measure high/low pressure and display corresponding condensation/evaporation temperatures, aiding in the diagnosis of refrigeration system performance and refrigerant charge.

- **EV:** Evaporation temperature
- **CO:** Condensation temperature
- **LP:** Pressure at Low-Pressure pipelines
- **HP:** Pressure at High-Pressure pipelines

MESURE À DOUBLE CANAL

Peut mesurer simultanément la pression haute/basse et les températures de condensation/évaporation correspondantes, aidant au diagnostic des performances du système et de la charge de réfrigérant.

EV - Température d'évaporation

CO - Température de condensation

LP - Pression aux conduites LP

HP - Pression aux conduites HP

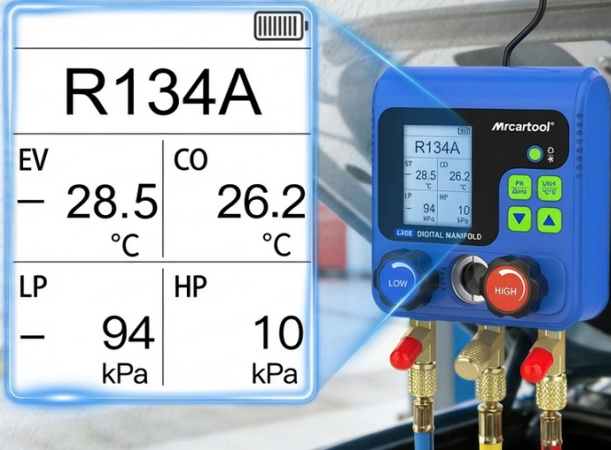


Figure 5.2: The display shows real-time values for evaporation temperature (EV), condensation temperature (CO), low pressure (LP), and high pressure (HP) for the selected refrigerant (e.g., R134A).

5.3. Vacuum Measurement

Perform vacuum operations on refrigeration systems with real-time display of vacuum pressure and vacuum percentage data.

1. Close the blue and red valves on the manifold.
2. Turn on the instrument. Ensure the LCD screen displays the vacuum test status. If not, short press the [FN ZERO] button to switch.
3. Press the [UNIT (°C/°F)] button to adjust the reading unit.
4. When the instrument is turned on, there may be 10 digits in the high and low pressure area. At this time, you must short press the [FN ZERO] button until it returns to zero.
5. Connect the instrument to the refrigeration system under the vacuum pump. Pay attention to the direction of refrigerant flow (right).
6. Once the vacuum operation is complete, close the blue and red valves, then leave the vacuum pump. At this point, the leak test mode can be used to check for leaks in the system.

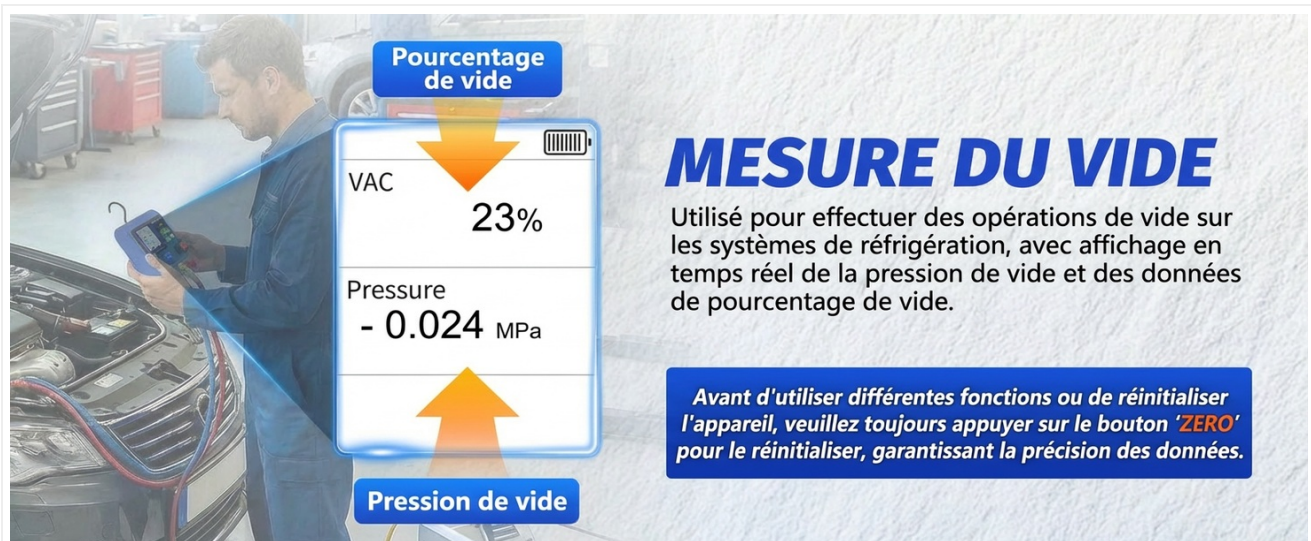


Figure 5.3: Vacuum measurement display showing vacuum percentage and vacuum pressure. Before use, long press 'ZERO' to reset data.

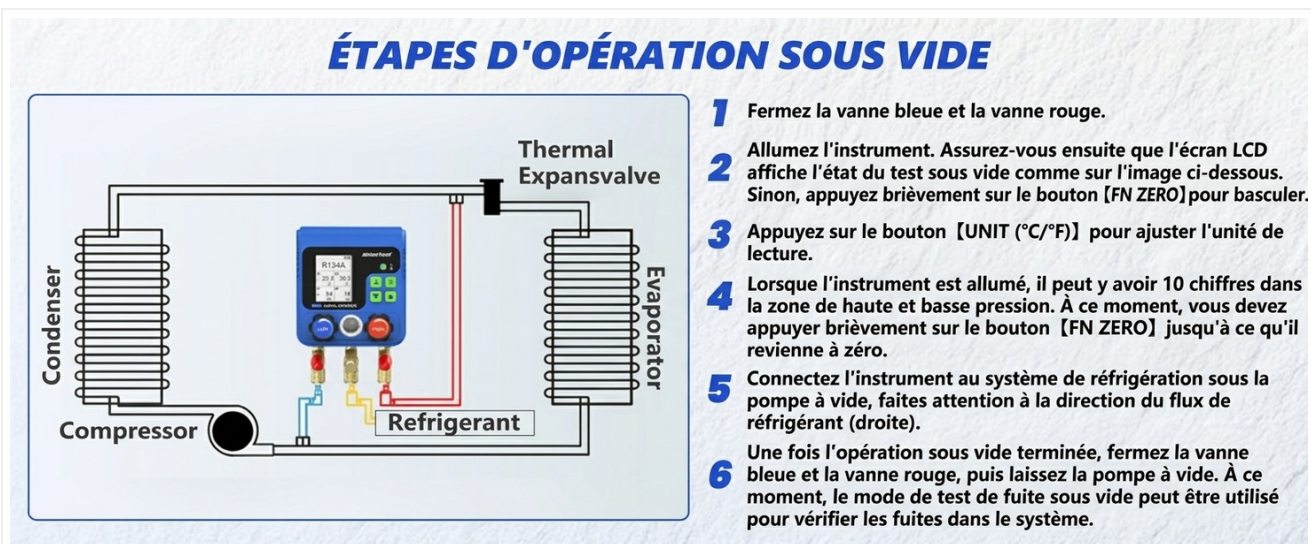


Figure 5.4: Vacuum operation steps diagram, showing connections to compressor, condenser, thermal expansion valve, evaporator, and refrigerant lines.

5.4. Pressure Leakage Test

After vacuum operation or refrigerant filling, use the pressure leak test mode to check for leaks in the system.

1. Ensure the instrument is powered on with the blue and red valves closed.
2. Short press the [FN(ZERO)] button to select the leak test mode. The LCD screen will quickly display the leak test system status.
3. Press the [▲+] button to start or stop recording the leak test. The lower left corner records the initial pressure value. The upper left corner displays the real-time pressure value. The lower right corner displays the pressure gradient. The display area indicates the test duration in HH:MM (Hours: Minutes). Different test units can be converted by short pressing the [UNIT] button.
4. Press [▲+] to stop the pressure leak test.



Figure 5.5: Pressure leak test display showing duration, pressure difference, initial pressure, and real-time pressure.



Figure 5.6: Step-by-step guide for conducting a pressure leak test.

5.5. Refrigerant Filling and Pressure Inspection

1. Close the blue and red valves.
2. Turn on the instrument. Ensure the LCD screen displays the pressure test status. Short press the [FN(ZERO)] button to switch.
3. Press the [UNIT (°C/°F)] button to select the refrigerant type. Press the [▲] button to select the target refrigerant.

4. When the instrument is turned on, there may be 10 digits in the high and low pressure area. At this time, you must short press the [FN ZERO] button until it returns to zero.
5. Connect the instrument to the refrigeration system according to the diagram below. Pay attention to the direction of refrigerant flow (right).
6. Open the blue and red valves.
7. When the refrigeration system stops, turn on the high-pressure valve (red valve) and the low-pressure valve (blue valve).
8. Observe the pressure value on the instrument.
9. For the refrigeration system, turn on the low-pressure valve (blue valve) to slowly fill the refrigerant.
10. First, close the refrigeration system, ensure all valves are closed, then disconnect the instrument. Please ensure the refrigerant is filled to the appropriate level. If too much refrigerant is added, it can damage the refrigeration system. If too little refrigerant is added, the refrigeration system may not function correctly. Then slowly turn on the refrigerant.



Figure 5.7: Refrigerant filling and pressure inspection diagram, showing connections and flow direction.

5.6. Multiple Unit Switching

The device supports multiple pressure and temperature units for versatile use across different regions and industries.

- **Pressure Units:** kPa, MPa, bar, inHg, psi
- **Temperature Units:** °C, °F

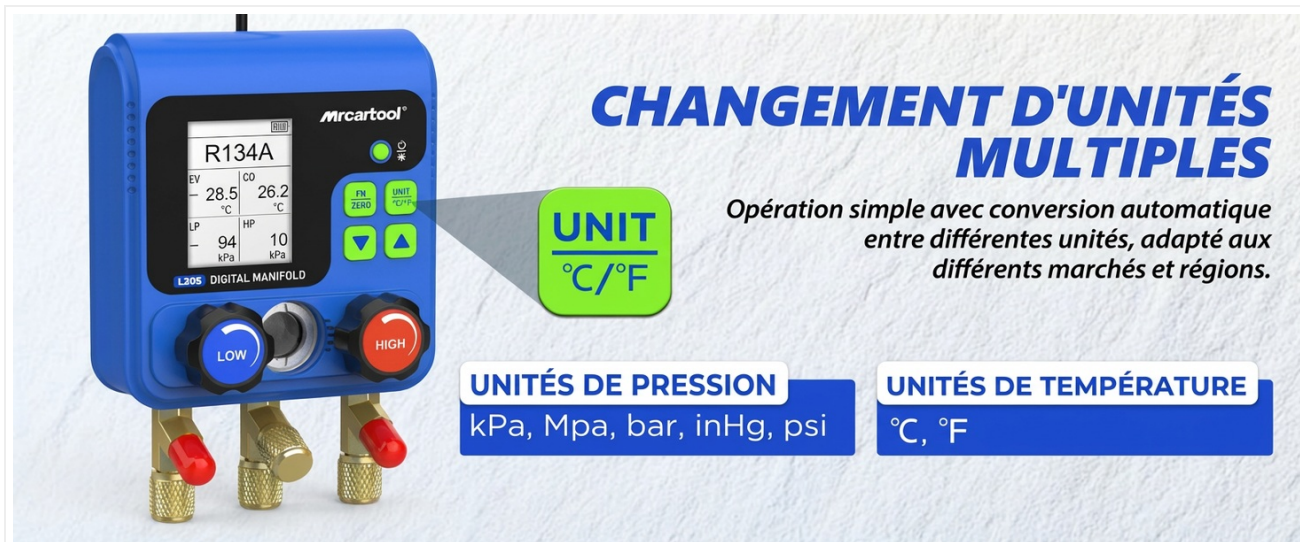


Figure 5.8: Unit switching interface, allowing selection of various pressure and temperature units.

5.7. HD Display and Backlight

The L205 features a backlit LCD display, ensuring clear readability in both strong light and dim working environments. Short press the backlight button to turn the backlight on or off.



Figure 5.9: The HD display with backlight function for improved visibility.

6. MAINTENANCE

6.1. Cleaning

Wipe the device with a soft, damp cloth. Do not use abrasive cleaners or solvents that could damage the display or casing.

6.2. Battery Replacement

When the battery indicator on the display shows low power, replace the 3x 1.5V AA batteries as described in Section 4.2. Remove batteries if the device will not be used for an extended period.

6.3. Storage

Store the device in its protective case in a cool, dry place away from direct sunlight and extreme temperatures.

7. TROUBLESHOOTING

7.1. Device Not Powering On

- Check if the batteries are installed correctly and have sufficient charge. Replace batteries if necessary.
- Ensure the power button is pressed firmly.

7.2. Inaccurate Readings

- Perform a zero-reset by long-pressing the 'ZERO' button.
- Verify that the correct refrigerant type is selected.
- Ensure all connections to the refrigeration system are secure and leak-free.

7.3. Suspected Internal Leak

If the device itself appears to have an internal leak, as indicated by pressure readings dropping when no external leaks are present, discontinue use and contact customer support for assistance.

8. SPECIFICATIONS

Parameter	Value
Brand	MR CARTOOL
Model	L205
Material	Plastic
Dimensions (L x W x H)	14 x 8.5 x 18.5 cm
Pressure Test Range	0-6000 Kpa
Pressure Test Resolution	1 Kpa
Pressure Test Accuracy	±0.5%(FS) + 5dgt
Vacuum Test Range	-101-0 Kpa
Vacuum Test Resolution	1 Kpa
Temperature Test Unit	°C, °F
Overload Limit	10000 Kpa
Power Supply	3x 1.5V AA battery
Components Included	Digital Manifold Gauge

9. WARRANTY AND SUPPORT

MRCARTOOL offers quality support for 90 days and 24/7 customer service. If you encounter any problems, please do not hesitate to contact us. We will provide a solution as soon as possible.

For support, please visit the official MRCARTOOL website or contact their customer service directly.

