

MICRODAM

Digital Manifold

MDM009A Prime

User Instruction
Manual

※ Please read and fully understand the User Instruction Manual before installation, operation and maintenance



Digital Manifold
MDM009A Prime



CE FC ISO 9001:2015 Certified

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2. Product Specifications

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www.microdam.co.kr

2.1 Technical data

Item	Descriptions
Unit of measure	• Pressure : Kpa/Mpa/bar/psi • Temperature : °C/°F/K • Vacuum : hpa/Torr/inH2O/Micron/mbar/inHg
Sensor	• Pressure : Pressure sensor × 2 • Temperature : K-type × 2 • Vacuum : Vacuum sensor × 1
Pressure media	• FCKW, FKW, N, H2O
Measuring cycle	• 0.75 second
Measuring channel	• 4 channels
Interface	• Pressure : 7/16" UNF × 3, 5/8" UNF × 1 • Temperature : K-type socket
Measuring range	• Pressure measuring range HP/LP(rel) : -1~50 bar(rel) / -14.7~730 psi(rel) 100~5000 Kpa(rel) / 0.1~5Mpa(rel) • Temperature measuring range : -50 ~ 150°C
Accuracy (at 22°C/71.6°F)	• Pressure : ±0.75%fs (±1 digit) • Vacuum : ±1%fs (±1 digit) • Temperature : ±0.5K (±1 digit)
Ambient conditions	• Operating temperature : -10 ~ 50°C • Storage temperature : -20 ~ 60°C
Power supply	• 1.5V AA batteries × 4 units • Battery life: about 100 hours (without display light)
Display	• Type : illuminated LCD • Response time : 0.1 second
Selectable refrigerants (66 Types)	R449A, R450A, R452A, R454C, R455A, R500, R502, R503, R507, R513A, R600, R600A, R717, R718, R744, R1234yf, R11, R12, R22, R23, R32, R114, R123, R124, R134A, R152A, R290, R401A, R401B, R402A, R402B, R403B, R404A, R406A, R407A, R407B, R407C, R407F, R407H, R408A, R409A, R410A, R414B, R416A, R417A, R422A, R438A, R442A, R448A, R13B1, R14, R1234ze, R125, R142b, R227ea, R420A, R421A, R422B, R422C, R422D, R424A, R426A, R427A, R434A, R437A, R508B
Warranty period	1 year

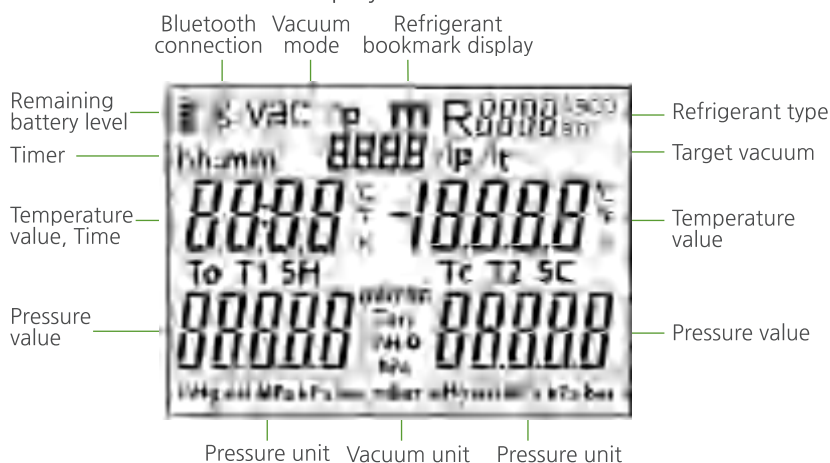
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3. Product Information

3.1 Overview (Display and control elements)



- ① K-type temperature clamp socket
- ② Foldable fixing device
- ③ Marked content on the display



Name		Description
Δt	SH	Degree of superheat, Evaporation pressure
	SC	Degree of subcooling, condensation pressure
To	Ev	Refrigerant evaporation temperature
Tc	Co	Refrigerant condensation temperature
T1	T1	Measured temperature of evaporator (Exterior Probe)
T2	T2	Measured temperature of condensor (Exterior Probe)

- ④ Battery compartment: 1.5V battery × 4 units (AA type)
- ⑤ Operation keys

Button configuration

Power	Power on/off	◀ ▶	Moving unit, Moving between menus
Ref	Setting refrigerant	Set	Setting unit, Setting auto-on/off
Pres	Pressure measuring mode	Ref. M	Registering & selecting frequently used refrigerant
Pres Leak	Pressure leak test mode	Link	Pairing Bluetooth with smartphone
Vac Target	Setting the target vacuum level	P=0	Setting the zero-point
Vac	Vacuum measuring mode	Temp	Temperature measuring mode
Vac Leak	Vacuum leak test mode	☀	LCD backlight on/off

- ⑤ Sight glass: Checking the refrigerant flow and condition
- ⑦ Valve handle × 4
- ③ Refrigerant hose hanger × 6
- ⑤ Connections 7/16" UNF × 3, Connections part 5/8" UNF × 1
left/right, low/high pressure refrigerant hose
- ⑩ Vac-Lock valve : Protect Vacuum sensor

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4. First Step

Inserting the battery / rechargeable battery

1. Unfold the foldable fixing device and open the battery cover.
2. Insert the batteries (included in this product) or rechargeable batteries (4×1.5V, AA type)
3. Close the battery compartment.

! When not using for a long time, remove the batteries / rechargeable batteries.
! Fully charge the rechargeable batteries before using the gauge.

Power on

- Press and hold **Power** for about 2 seconds.
 - Initial setup phase : All display segments are displayed. (For 1 second)
 - Measurement view opens.

Performing setup

1. Press the **Set** button.
 - Each time setting button is pressed, the setting screen of (Pressure Unit)- (Vacuum Unit)- (Temperature Unit)- (Auto Off/On) is changed sequentially.
2. Setting parameters

Key function	Description
◀ ▶	Changing the unit or value within each setting screen
Set	When the selection value of each setting screen is confirmed, press the [Setting] button to confirm and move to the next setting screen.

Performing unit setup & auto off setup

Display	Description	Button
Kpa/Mpa/Bar/psi	Setting the pressure unit	[Set] 1 time + Arrow
Hpa/Torr/inH2O Micron/mbar	Setting the vacuum unit	[Set] 2 times + Arrow
℃/°F/K	Setting the temperature unit	[Set] 3 times + Arrow
“Auto Off” on or “Auto Off” off	Turning on/off the auto-off function When the auto-off function is turned on, the equipment is automatically turned off after 30 minutes of operation.	[Set] 4 times + Arrow
The screen returns to the pressure measuring screen.		[Set] 5 times + Arrow

※ The final selection value is applied to the setting.

Selecting refrigerant

1. Press the **Ref** button.
2. After selecting the refrigerant to be used with the arrow buttons, press the [Ref] button again.

How to register refrigerant as a bookmark

1. Press the [Ref] button.
2. After selecting the refrigerant to be used with the arrow button, press the **Ref. M** button
3. Check that the character “m” is displayed next to the refrigerant name.
(When canceling the bookmark, press the [Ref. M] button to make the character “m” disappear.)

4. Press the **Ref** button.

※ Totally 5 refrigerant bookmarks can be registered.

How to directly select the refrigerant registered in bookmark

1. Each time you press the **Ref. M** button, the refrigerant registered in the Favorite is sequentially switched.

This New Digital Manifold Gauge is the same as the conventional 2-way Manifold Gauge for the refrigerant path. The passage opens when the valve is opened. Adjacent pressure is measured even in case that the valve is either closed or open.

- ▶ Opening the valve: Turn the valve handle counterclockwise.
- ▶ Closing the valve: Turn the valve handle clockwise.

Warning

Be sure to close the valve handle by hand!
If you use other tools when turning to close, the threads could be damaged.

5. Product Use

5.1 Preparation for measurement

5.1.1 Connecting the temperature clamp

In order to measure the difference between the pipe temperature and the optimum temperature, be sure to connect the K-type temperature clamp (accessory).

5.1.2 Turning on gauge

- Press and hold **Power** for about 2 seconds.

- Zero adjustment of the pressure sensor

Before measuring, be sure to carry out zero adjustment of the pressure sensor.

1. Be sure to depressurize the connections of low and high pressure. (ambient pressure)
2. Press and hold the **P=0** button for about 2 seconds to perform zero adjustment.

- Connecting the refrigerant hoses

Close the valve handle.

1. Connect refrigerant hoses for the low-pressure side (blue) and the high-pressure side (red) to the measuring instrument.
2. Connect the refrigerant hose to the system.

Warning

If the gauge has been dropped or a serious machine problem has occurred, it is possible that the pipe area of the refrigerant hose has been damaged. The valve handle can also be damaged, and it is difficult to identify in appearance the inside damage of the gauge.

5.2 Measurement

Warning

Pay attention to the risks of injury caused by high pressure, high temperature, stagnation temperature, or toxic refrigerant.

- Wear safety goggles and protective gloves.
- Before applying pressure to the gauge, always fix the gauge to the suspension device to avoid dropping it. (Prevention of the damage risk)
- At the time of each measurement, check whether the refrigerant hose is damaged and/or correctly connected.
In connecting the refrigerant hose, never use any tool other than your hand. Only turn it by hand.
- Take measures against occurrence of danger.