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Accurate Digital Gauge Operating Manual

VDG-1

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Displays OL	Exceeds maximum range
Displays ——	Damage of temp sensor or wrong connection
Displays ERP FAIL	Memory error Please contact local distributor or value sales
Fail to find R1234YF	Couldn't display R1234YF because of limits of the LCD display. Choose R922B

7.2 Accessories

Name	Amount	Weight
Digital Gauge	1	1000g
K model temp sensor	1	100g/pc
Quick coupling	2	135g/pc
Pipes	3	190g/unit
Box	1	1200g/unit

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6.3 Change refrigerant pipes regularly

The popes may exist hidden trouble or be damaged after a long time. Changing refrigerant pipes regularly can help to reduce the risk when testing.

6.4 Clean dirt and impurity in the valve

Open the valves and use co, pressed air to eliminate the dirt and impurity.

6.5 Change the battery

1. Power off the digital gauge.
2. Pull up the hook and open the battery cover.
3. Replace the battery.
4. Open the digital gauge.
5. Close the battery cover.

7. After service

7.1 Trouble shooting

Fault	Possible reasons
 blink	Battery goes dead and change it.
Digital gauge shut off automatically	1. Low battery 2. without press any button in 15 minutes

5.3 Zero setting operation

Warning: The figure of digital gauge may not display 0 under barometric pressure, because different zone and environment cause the changing of temperature and pressure.

5.3.1 Zero setting

1. Starting up the gauge.

2. Open the input port, and make sure the gauge's inside pressure is the same with outside.

3.Press ▲and▼ at the same time

Noticed: The measuring figure is not accurate with improper zero setting operation, please Try the zero setting operation again.

6. Maintaining

6.1 Shell clean

Clean the surface of digital gauge can only use a damp cloth and mild detergent.

Attention: Do not use strong basicity or strong acid detergent.

6.2 Copper connection clean

A wet cloth can be used to clean the connection and keep the screw thread clean.

1. Safety instruction

1.1 Safety Guide

Please do not use the product in dangerous place.

Please do not test on a move object.

Don't mix with other solvent and this product doesn't need drier.

Only qualified service personnel should maintain and repair this product according to prescribed steps. It is recommended adopting genuine parts if needed. It should be avoid any external collision when using the product.

Please notice the risk of environment and object measured and take necessary measures.

If the product gets external collision or falls to the ground, it may cause the damage of refrigerant pipe. It is recommend to check up the product and change the refrigerant pipe.

Wear safety glasses and gloves to avoid dangerous refrigerant vapor or mist.

1.2 Environment protection

Take used batteries to the battery collection point.

The refrigerant will pollute the environment and please obey the local law.

2. Product performance

2.1 Applied field

VDG-1 digital gauge has been designed especially to maintain and repair the vacuum refrigeration system. The product may only be used by trained technicians. It is an integration of traditional manifold gauge, thermo detector, refrigerant gauge, measurable for pressure and temperature. Suitable for detecting most media like non-corrosive refrigerant, water, alcohols and so on. It is unsuitable for ammonia refrigeration.
This product is not suitable to the place needed anti-explosion requirement.

Reading display	Instruction
Saturated Temp.	Temperature of corresponding refrigerant and pressure
Sensor Temp.	The temperature measured by temp sensor
Superheat	Superheat
Subcool	Supercool

5.2.2 Leak test/pressure drop test

Attention: The product is available for leak test by measuring the pressure difference of starting and finishing. If there exist temp difference of starting and finishing, the compensation algorithm is done automatically by the system.

1. Please finish the above steps.
2. Begin leak test: press leak button and record the figure of pressure and temp
3. Finish leak test: press leak button again and record the figure of pressure and temp.
4. Data query: Press leak button, the pressure difference will display.

5.2 Measuring

Warning: high temp, high pressure, low temp and poisonous refrigerant may cause injury.

Wear safety glasses and gloves.

It should be avoid any external collision when using the product.

The pipes should be in good condition and connected correctly before using. It is prohibited to tighten the pipes by tools.

There exist risks when measuring the pressure of refrigerant.

5.2.1 Measuring

1. Finish the above steps.
2. Open the valves.
3. Read the figure.

Attention: the reading will blink when the pressure exceeds maximum range.

Press temp button

2.2 Specifications

Pressure Display: psi bar Kpa Mpa	
Temperature Display: ℃ ℉	
Sensor	Pressure: pressure sensor*2 (Built in)
	Temperature: temperature sensor*1(External)
Detection frequency	1S
Testing medium	CFC HFC N H_20
Connection	Pressure connection: 3*1/4''SAE
	Temperature connection: 2*PCC-SMP-K
Pressure scale	Relative pressure: -1~50 bar; -14.5~725 psi; -100~5000kPa; -0.1~5Mpa
	Temperature scale: -50~+150 ℃ ; -58~302℉
Environment humidity	10~90% RH
Maximum over pressure	75 bar; 7500 kPa; 7.5 MPa; 1087 psi
Resolution	Pressure resolution: 1 psi; 0.1 bar; 10 kPa; 0.01 Mpa
	Temperature resolution: 1 ℃; 1 ℉
Pressure accuracy: ±0.75% (±1digit of reading)	
Temperature accuracy: ±2K	

Built-in refrigerant	More than 40
	R11; R123; R404A; R414B; R600A; R428A; R12; R124; R406A; R744; R426A; R417A; R13; R134a; R407A; R422A; R1234yf; R437A; R22; R290; R407C; R422D; R424A; R23; R401A; R408A; R427A; R434A; R728; R32; R401B; R409A; R502; R422B; R113; R402A; R410A; R507A; R416A; R114; R402B; R413A; R508B; R420A(H_20)
Unsuitable medium	Ammonia(R717)and ammoniac refrigerant
Environment requirement	Operation temperature: -10~50 ℃; -44~122℉
	Storage temperature: -20~60 ℃ ; -4~140℉
Shell	Material: ABS/PC/TPE
	Size: 210×130×75mm
	Weight: 1000g (not include battery)
Power	4×1.5V, AA (Mignon/LR6 dry battery or rechargeable battery)
Display	LCD display with backlight
	Refresh frequency: 1S
	Response time: 1S
Standard	JB/T 7392-2006

5.1.2 Open the digital gauge

Press ⏻ button

Connect the pipes

Close both control valves

1. Connect blue pipe to the low pressure connector and Connect red pipe to the high pressure connector.
2. Connect yellow pipe to the middle connector.
3. The other end of pipes should be connected in corresponding equipment.

Warning: If the product gets external collision or falls to the ground, it may cause the damage of refrigerant pipe. It is recommend checking up the product and changing the refrigerant pipe.

Refrigerant setting

Button	Instruction
▲or▼	Change the refrigerant
Enter	Confirm the desired refrigerant

For example: Setting R22 refrigerant

1. Press ▲ or ▼ button until R22 shows.
2. Press Enter button to confirm.

Attention: The systems will tacitly approve the current refrigerant without pressing any button in 30s.

Refrigerant R1234YF will show R922B in menus.

5. Operation instructions

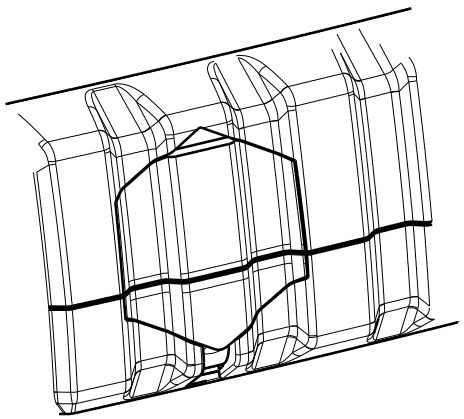
5.1 Preparing

5.1.1 Temperature sensor connection

By connecting K model temperature sensor, the product can measure the temperature of the object and compute the degree of supercooling and superheat.

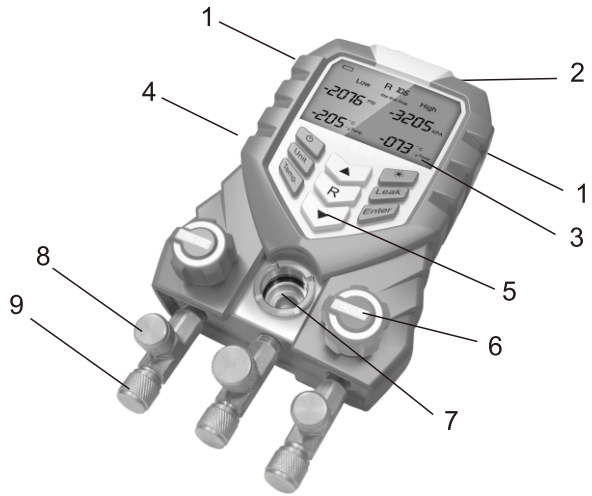
The temperature sensor should be connected with power off to avoid the unidentification by digital gauge.

The connector of temperature sensor is on the side, open the rubber covers when using. As the picture shows:



3. Description

3.1 Basic function



1——PCC-SMP-K socket suitable for K model temperature sensor with waterproof plug.

2——Foldable hook.

3——LCD display:

Battery capacity: 100% ＞75% ＞50% ＞25% 0%

4——Battery holders

5——Keys

Button	Function	Button	Function
⏻	Power	▼	Up button
Unit	Set unit	☀	Backlight on/off
Temp	Displays	Leak	Leak detecting start/over
▲	Up button	Enter	Enter
R	Set/select the refrigerant		

6——Sight glass: you can watch flow condition of refrigerant

7——Control valve

8——Refrigerant trestle

9——Connection with sealed copper cap

Left connection is corresponding to low pressure pipe.
Right connection is corresponding to high pressure pipe.
The middle connection is corresponding to refrigerant container or other recovery equipment.

4. Initial Setup

Battery installation

1. Pull up the hook and open the battery cover.
2. Place the battery into the cover.
3. Close the cover.

Attention: take the battery out of the cover if not used for a long time.

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VDG-1 starting

Press ⏻ button about 2 second to turn on the instrument. After 15 seconds warm-up, pressure and temperature will appear.

Settings

1. Press Unit button to select the unit.

Press ▲ or ▼ to choose the unit you want and then press enter to confirm the unit.

℃ and °F are selectable temp units, psi bar kpa and mpa are selectable pressure units.

2. Operation of control valve

Connect the popes, open the valve, the refrigerant will get through the valve and test the pressure.

Open the control valve: turn the knob anticlockwise.

Close the control valve: turn the knob clockwise.

Warning: you can't put much power to turn the knob to avoid damaging the valve. It is prohibited to turn the knob by tools.