USER MANUAL

MANIFOLD TESTER

PCE-HVAC 10

ENGLISH



User manuals in various languages (français, italiano, español, português, nederlands, türk, polski) can be found via our product search on:
www.pce-instruments.com

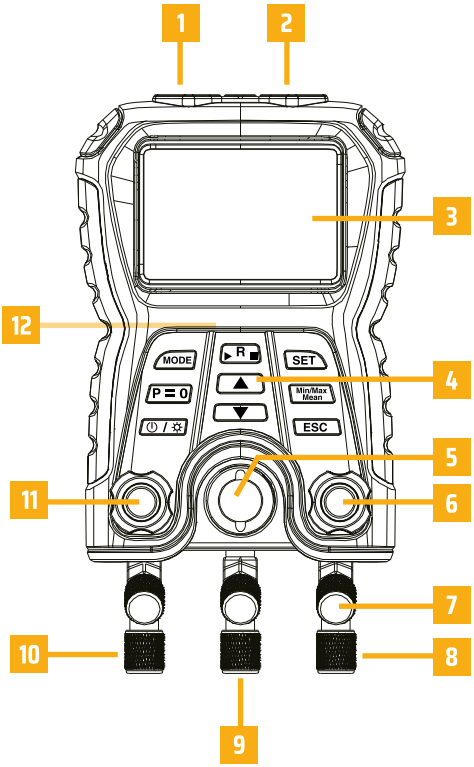
CAUTIONS

To ensure the proper use of this product, please read the operation instructions carefully:

- Never disassemble or refit this product personally without authorization.
- If the hose is damaged, please change it in a timely manner.
- Do not drop or impact the instrument to avoid damage.
- The measuring instrument can only be used by qualified and approved personnel.
- If this product lies idle for long, please take out the battery to avoid battery leakage and corrosion.
- Refrigerant gas will do hazard to the environment, so it is required to ensure that it will comply with the local environmental regulations when using it.
- If there is any failure in the instrument, stop using it and contact the supplier or manufacturer in time.
- Do not discard the waste batteries at will, but send them to the specified collection points for waste batteries.
- Please evaluate whether the measuring object or environment is safe, and note the safety standards in your measuring areas.
- The instrument is suitable for the measurement of most non corrosive refrigerants, water and alcohol media. The instrument may not be used in explosion-proof areas.

DEVICE DESCRIPTION

1 - Terminal T1 temperature clamping port
2 - Terminal T2 temperature clamping port
3 - Display screen
4 - Button
5 - Liquid view mirror (used to observe the flow of refrigerants)
6 - High pressure end control valve: loosen it counterclockwise, turn on the value for ventilation, tighten it clockwise, and there is no air ventilation after the valve is turned off.
7 - Liquid filling pipe support
8 - High pressure end connector
9 - Liquid filling end connector: used to connect the refrigerant bottles
10 - Low pressure end connector
11 - Loosen it counterclockwise, turn on the value for ventilation, tighten it clockwise, and there is no air ventilation after the valve is turned off.
12 - Battery compartment



Buttons	Functions
	Go to or exit the leakage test interface
	Clear pressure readings
	» Power on/off » Backlight on/off
	» Go to the refrigerant selection interface » Start/Stop leakage test
	» To switch interfaces » Change parameters during setup
	» To switch interfaces » Change parameters during setup
	Go to the setting interface
	View maximum / minimum / mean values
	Return to the measurement interface

FIRST STEPS

Power on/off
Long press the POWER/BACKLIGHT button for power on or off.

Clear pressure
Before connecting the hose, clear the pressure readings: Turn on the value, and press P=0 button for clearance.

Backlight
Shortly press the POWER/BACKLIGHT button to activate backlight, and press it onceagain to deactivate backlight.

Mounting the battery
» Open the battery cover. Install 4 AA alkaline batteries. Note the polarity.

» They may not be mounted wrongly. After battery installation, cover the battery cover.

Maximum, minimum and mean values
» Press the MIN/MAX/MEAN button to display the maximum value → continue to

» press the MIN/MAX/MEAN button to display the minimum value → continue to

» press the MIN/MAX/MEAN button to display the mean value → continue to

» press the MIN/MAX/MEAN button to exit (or press ESC button to quit).

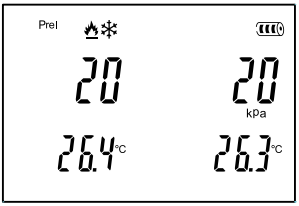
Select refrigerants
» Press the START/STOP/R button to go to the refrigerant selection interface.

» Press the UP or DOWN button to switch refrigerants.

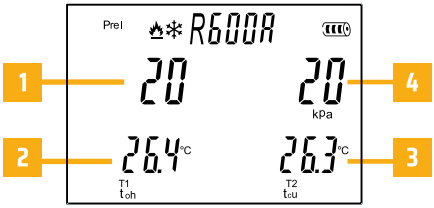
» Press the START/STOP/R button again to return to the measurement interface.

DISPLAY INTERFACE

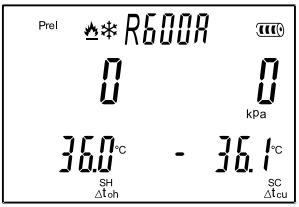
If no refrigerant has been chosen, the following interface is displayed by default when powered on.



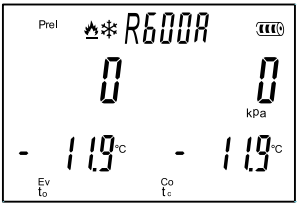
If one of refrigerants is selected, the following interface is displayed by default when powered on.
1 - Evaporating pressure
2 - T1 probe temperature value
3 - T2 probe temperature value
4 - Condensing pressure



Press the DOWN button to switch to the over cooling and overheating display interface, as shown in the figure:

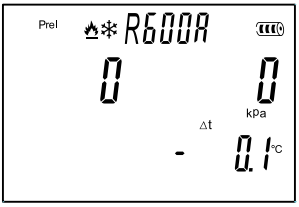


Continue to press the DOWN button to switch to the evaporating temperature and condensing temperature display interface.



Pressure is displayed at the upper part of the screen, and the evaporating temperature and condensing temperature are displayed at the lower part of the screen.

Continue to press the DOWN button to switch to the temperature difference display interface.



Δt=T2-T1

SETTINGS

Continuously press the SET button 6 times, with the display in turn:
pressure unit setting interface → temperature unit setting interface → relative/absolute pressure setting interface → Air pressure setting interface → refrigerating/heating mode setting interface → automatic power off function setting interface. Finally, press the ESC button to quit the setting interface.

Setting pressure units
From the pressure unit setting interface, press the UP or DOWN button to switch the pressure units. There are four pressure units in all: kpa, Mpa, psi and bar

Setting temperature units
From the temperature unit setting interface, press the UP or DOWN button to switch temperature units. There are 2 temperature units in all: °C and °F.

Setting relative/absolute pressure
From the relative/absolute pressure setting interface, press the UP or DOWN button to select the relative pressure measurement mode or absolute pressure measurement mode.
Absolute pressure: pressure value by adding air pressure.
Relative pressure: pressure value minus air pressure.

- If the relative pressure measurement mode is chosen: according to the selected pressure unit, prel or psig is displayed at the left upper cornerof the screen.
- If the absolute measurement is chosen: according to the selected pressure measurement unit, pabs or psia is displayed at the left upper corner of the screen.

Air pressure setting interface
There is difference in air pressure in different areas. The user will make adjustments to air pressure at the place where he or she is currently located. From the air pressure setting interface, press the UP or DOWN button to adjust the air pressure value.

Setting the refrigerating/heating modes
From the refrigerating/heating mode setting interface, press the UP or DOWN button to select one of the modes. There are three modes in all: hot pump mode, refrigerating mode, and automatic mode.

Setting automatic power off functions
From the automatic power off function setting interface, press UP or DOWN button, select ON to turn on the automatic power off function, and select OFF to turn off the automatic power off function. When the automatic power off function is turned on: if you do not press the button within 20 minutes, it will be automatically shut down.

DESCRIPTION OF SYMBOLS

Symbols	Meaning
T1	Number of temperature probe
T2	Number of temperature probe
prel / psig	Relative pressure
pabs / psia	Absolute pressure
	Hot pump mode
	Refrigerating mode
	Auto mode
max	Maximum value
min	Minimum value
mean	Mean value
p=0	Clear pressure readings
Δt	T2-T1
Δtoh	Overheat
SH	Evaporating pressure
Δtcu	Over cooling
SC	Condensing pressure
to	Refrigerant's evaporating temperature
Ev	Refrigerant's evaporating pressure
tc	Refrigerant's condensing temperature
Co	Refrigerant's condensing pressure
toh	Actually measured temperature at T1 terminal (evaporating temperature)
tcu	Actually measured temperature at T2 terminal (condensing temperature)

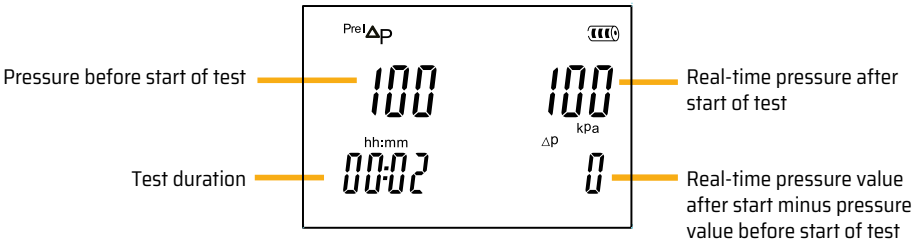
ROUTINE MEASUREMENT

- Connect 2 temperature clamps respectively to the temperature probe connector of the instrument.
- Power on
- Select refrigerants: press the START/STOP/R button to enter the refrigerant selection interface. Press the UP or DOWN button to switch refrigerants. Press the START/STOP/R button once again to return to the measurement interface.
- Select the measurement mode (please refer to SETTINGS for the operation method)
- Connect the high pressure end and the low pressure end under an ambient pressure.
- If the reading is not zero without pressure input, please press the P = 0 button to clear the pressure readings.
- Turn off the control valve before connecting the refrigerant hose
- Connect the liquid filling pipe to the system.
- Input pressure to the measuring instrument.
- Read the readings. Press the UP or DOWN button to be able to switch to other measurement interfaces.

LEAKAGE TEST

This function is used for leakage test in refrigeration or hot pump system. Leakage analysis is performed by system pressure over a period of time.

- Press the P = 0 button to clear the pressure readings (clearance if there is no pressure input).
- Use a hose to connect the high pressure end of the instrument to the system.
- Press the MODE button to switch to the leakage test interface
- Press the START/STOP/R button to start the test, and press the START/STOP/R button once again to stop the test.
- The test duration depends on the system tested.



PRODUCT SPECIFICATION

Pressure measuring range relative pressure	-100Kpa ... 6000Kpa -0.1Mpa ... 6Mpa -14.5psi ... 870psi -1bar ... 60bar
Overload pressure	6500Kpa 6.5Mpa 940psi 65bar
Pressure accuracy	±0.5%FS
Pressure resolution	1Kpa 0.01bar 0.1psi 0.001Mpa (0.01Mpa during negative pressure)
Temperature measuring range	-10°C ... 200°C / 14°F ... 392°F
Temperature accuracy	± (1°C + 1dgt)
Temperature resolution	0.1°C / 0.1°F
Optional refrigerants	R11, R12, R123, R124, R125, R1270, R13, R134A, R14, R141b, R142b, R143A, R152A, R170, R21, R218, R22, R227E, R23, R236E, R245C, R245, R290, R32, R401A, R401b, R401C, R402A, R402b, R403A, R403b, R404A, R405A, R406A, R407A, R407b, R407C, R407d, R407E, R408A, R409A, R409b, R41, R410A, R410b, R411A, R411b, R412A, R413A, R414A, R414b, R415A, R415b, R416A, R417A, R418A, R419A, R420A, R421A, R421b, R422A, R422b, R422C, R422d, R423A, R424A, R425A, R426A, R427A, R428A, R50, R500, R501, R502, R503, R504, R507A, R508A, R508b, R509A, R600, R600A, R717
Operating temperature	0°C ... 45°C
Storage temperature	-20°C ... 60°C
Ambient humidity	10%RH ... 90%RH
Power supply	4 x AA batteries
Dimension	204 x 116 x 65mm

DISPOSAL

For the disposal of batteries in the EU, the (EU) 2023/1542 directive of the European Parliament applies. Due to the contained pollutants, batteries must not be disposed of as household waste. They must be given to collection points designed for that purpose. In order to comply with the EU directive 2012/19/EU we take our devices back. We either re-use them or give them to a recycling company which disposes of the devices in line with law. For countries outside the EU, batteries and devices should be disposed of in accordance with your local waste regulations. If you have any questions, please contact PCE Instruments.

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