

## DIGIMON Instruction manual for the 2-way digital manifold

### DIGIMON



- 1) Low pressure anchor 1/4" SAE
- 2) High pressure anchor 1/4" SAE
- 3) Low pressure valve (blue)
- 4) High pressure valve (red)
- 5) Vacuum + refrigerants anchor 1/4" SAE
- 6) External K-type thermocouple
- 7) Clamp thermocouple K- type, P/N 4681466 (optional)

### Important

**!** Read this manual carefully and familiarise yourself with the specifications and operation of the REFCO DIGIMON digital manifold prior to use. These instructions provide important information regarding to the operation and service of the manifold.

### Purpose and use

The manifold has been designed specifically to measure pressure and temperature in refrigeration equipment. For use only by trained technicians.

**!** The manifold **must not be used** for other than refrigerant applications. The manifold is not suitable for other liquids or gases except those indicated on the display.

**!** The manifold **must not be used** with pressure higher than 870psi / 60bar / 6000kPa / 6MPa.

**!** The manifold **cannot be used** as a pressure regulator, especially not in use with nitrogen N<sub>2</sub>.

**!** The manifold **cannot be used** with ammonia (NH<sub>3</sub> / R717).

**!** **Do not expose** the manifold to rain or wet conditions.

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Safety glasses and gloves **must be worn** during the use of the manifold.



REFCO-products are designed and manufactured for use by technically trained air conditioning and refrigeration service engineers only. Due to the high pressures employed and the danger due to the physical and chemical nature of refrigerants and oils used in the systems, incorrect application could result in accidents, injuries or death.

## Extent of delivery

Details about the variations and contents of the DIGIMON manifold are described in the REFCO catalog / flyer.

## Storage

DIGIMON is a precision measuring instrument. After use store the manifold in a protected environment. Do not store the manifold with refrigerant in the unit or hoses.

## Technical description

DIGIMON can be used with the following refrigerants:

R11, R113, R114, R12, R123, R124, R13, R134a, R13B1, R22, R227, R23, R290, R401A(Liq), R401A(Vap), R401B(Liq), R401B(Vap), R402A(Liq), R402A(Vap), R402B(Liq), R402B(Vap), R403B(Liq), R403B(Vap), R404A, R406A (Liq), R406A(Vap), R407A(Liq), R407A(Vap), R407C(Liq), R407C(Vap), R408A(Liq), R408A(Vap), R409A(Liq), R409A(Vap), R410A, R413A(Liq), R413A(Vap), R414B(Liq), R414B(Vap), R416A, R417A(Liq), R417A(Vap), R420A, R422A(Liq), R422A(Vap), R422B(Liq), R422B(Vap), R422C(Liq), R422C(Vap), R422D(Liq), R422D(Vap), R427A(Liq), R427A(Vap), R437A, R500, R502, R503, R507, R508A, R508B, R744

Liq = Liquid, Vap = Vapor

Maximum working pressure:	Low side 435psi / 30bar / 3000kPa / 3MPa High side 870psi / 60bar / 6000kPa / 6MPa
Pressure resolution:	0.5psi / 0.01bar / 1kPa / 0.001MPa
Pressure units:	psi / bar / kPa / MPa
Indication positive pressure:	4.35psi to 870psi, 0.3bar to 60bar, 30kPa to 6000kPa, 0.03MPa to 6MPa
Indication negative pressure:	0 to -13,7psi, 0 to -0.95bar, 0 to -95kPa, 0 to -0.095MPa.
Accuracy:	Class 1.0
External K-type thermocouple:	Temperature range: -40°F to +257°F / -40°C to +125°C

REFCO Manufacturing Ltd.  
Industriestrasse 11  
CH-6285 Hitzkirch (Switzerland)

Telefon +41 41 919 72 82  
Telefax +41 41 919 72 83  
Info@refco.ch www.refco.ch

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Clamp thermocouple K- type:

Operating temperature:

Vacuum specifications:

- 1st bar approx.
- 2nd bar approx.
- 3rd bar approx.
- 4th bar approx.
- 5th bar approx.

Power supply:

Plug: K-type

Accuracy:  $\pm 1^{\circ}\text{F}$  /  $\pm 0.5^{\circ}\text{C}$

Resolution:  $1^{\circ}\text{F}$  /  $0.5^{\circ}\text{C}$

Temperature range:

$-40^{\circ}\text{F}$  to  $+257^{\circ}\text{F}$  /  $-40^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$

Jaw range:

$\frac{1}{4}"$  to  $1\frac{1}{2}"$  /  $6\text{mm}$  to  $38\text{mm}$

Plug: K-type

Accuracy:  $\pm 1.8^{\circ}\text{F}$  /  $\pm 1^{\circ}\text{C}$

Resolution:  $1^{\circ}\text{F}$  /  $0.5^{\circ}\text{C}$

$14^{\circ}\text{F}$  to  $+122^{\circ}\text{F}$  /  $-10^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$

Indicative bar graph display

0 to -8 Inch of Hg / 0 to -300mbar

-8 to -17 Inch of Hg / -300 to -600mbar

-17 to -23 Inch of Hg / -600 to -800mbar

-23 to -26 Inch of Hg / -800 to -900mbar

-26 to max vac / -900 to max vac

Battery 9Vdc (6F22), approx. life:  
35 hours continues use.

## Key function

**ON / OFF**

**VAC**

**LIGHT**

**R+**

**R-**

**SUPERHEAT/SUBCOOL**

**ENTER**

Power ON / OFF

Vacuum display mode

LCD back light

(switches itself off after 30 sec)

Refrigerant selection up

Refrigerant selection down

Measuring of the Superheat and

Subcool temperature

Enter key function

## Set-up and Operation

Install the battery by removing the battery cover from the rear of the manifold.  
Turn on the manifold by pressing the **ON / OFF** button for 1 second.  
Check the battery indicator on the display.

### Setting refrigerants

To scroll through the refrigerants press the **R+** or **R-** buttons. On the top center of the display the letter "R" will begin to flash while scrolling. When the selected refrigerant is displayed press the **ENTER** button to confirm this selection. The letter "R" on the top will stop flashing. The refrigerant is now programmed.

**Note:** To confirm the refrigerant **ENTER** must be pressed after selecting the desired refrigerant. If **ENTER** is not pressed after selecting the desired refrigerant the DIGIMON will revert back to the previous programmed refrigerant.

### Setting Pressure units

Hold the **ENTER** button and press the **R+** button to select the pressure unit among psi / bar / kPa / MPa.

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## *Setting Temperature units*

Hold the **ENTER** button and press the **R** button to select the desired temperature unit °F/ °C.

**Note:** Selected settings will be stored in memory until the next manual change is made.

## *Back Light*

Press the **LIGHT** button and the back light will switch on for approximately 30 seconds.

## *Auto Shut-Off*

Approximately 10 minutes after the last measurement or key press the DIGIMON shuts off itself.

## *SUPERHEAT/SUBCOOL*

Chosen refrigerant and the measured temperature of the external K-type thermocouple (6) or the clamp thermocouple K- type (7).

## *Changing Superheat/Subcool*

Hold the **ENTER** button and press the **SUPERHEAT/SUBCOOL** to switch between superheat and subcool.

## *Vacuum mode*

Press the **VAC** button to display vacuum mode. Press the **VAC** button again to quit this function.

## *Reading the Vacuum display:*

The level of vacuum is shown on the display with (5) five vacuum bars. During evacuation, the vacuum bars will increase from (1) one bar, no vacuum, to a maximum of (5) five bars, high vacuum. The more bars displayed, the higher the vacuum. For a more detailed vacuum level see vacuum specifications.

**Note:** The DIGIMON must be powered ON before connecting the hoses and switching on the vacuum pump. If this is not in the correct order the vacuum display will not show the correct vacuum level.

**Note:** The DIGIMON must stay powered ON while pulling a vacuum. If the DIGIMON is powered OFF while pulling a vacuum, the vacuum display will not show the correct vacuum level.

The end-vacuum depends on the capacity of the vacuum pump and the current atmospheric pressure.

For an exact level of vacuum and for vacuum leak checking it is recommended to use a separate micron vacuum gauge like the VG-64 or the Absolute-Vacuum Gauge 19621(see REFCO catalog).

## *Reset*

For best results it is recommended to reset/zero the manifold periodically every 40 to 50 hours.

1. Disconnect any hoses.
2. Open low side (blue) and high side (red) valves.
3. Turn on the manifold by pressing the **ON/OFF** button for 1 second.
4. Press and hold **ENTER** and **LIGHT** button at the same time.
5. When the word "ZErO" is shown on the display release **ENTER** and **LIGHT** buttons.

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6. Press and release the **ENTER** button once. The manifold is now reset.



Do not attempt to reset/zero the manifold while under pressure or in a vacuum as incorrect pressure readings will be displayed.

## Connecting the manifold to a system

- Connect blue hose (1) → compound side of system
- Connect red hose (2) → pressure side of system
- Connect yellow hose (5) → vacuum pump
- Close both valves (3+4)

## Evacuation

- Turn manifold power on.
- Press the **VAC** button.
- Connect hoses.
- Switch on the vacuum pump.
- Open both valves (3+4).
- Check vacuum display.
- When the desired vacuum is reached close both valves (3+4).
- Press the **VAC** button again to quit this function.

## Charging a system after evacuation

- Keep all valves closed (3+4).
- Disconnect the yellow hose from the vacuum pump and connect this hose to the refrigerant gas cylinder.
- Open valve from refrigerant gas cylinder.
- Open blue valve (compound side). The system is now being charged with refrigerant. Check the correct quantity of refrigerant with a charging scale (REF-METER from REFCO) and observe the pressure on the compound side.
- When the correct filling quantity has been reached close all valves.
- After the charging process check the pressure on the high pressure and compound side of the unit.
- Disconnect all hoses from the system.
- Open valves (3+4).

## Measuring by using the Superheat-Subcool function

- See "connecting the manifold to a system."
- Plug in the external K-type thermocouple (6) or the clamp thermocouple K- type (7) into the DIGIMON. (Jack on the right hand side of the shell.)
- Install the external K-type thermocouple (6) with an adhesive tape or use the clamp thermocouple K-type (7) on the liquid or suction line.
- Choose the applicable refrigerant. (See "Setting of refrigerant.")
- Activating display of temperature difference:  
Press **SUPERHEAT/SUBCOOL**.
- To switch between superheat and subcool (liquid/suction line): Hold **ENTER** and press **SUPERHEAT/SUBCOOL**.

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## Service of manifold

For **SAFETY** and **RELIABILITY** of the manifold, hoses and accessories should be inspected to insure they are in good working order prior to each use.

All connection fittings and charging hoses must be checked and free of oil residue before each use. A visible inspection is also necessary to ensure that the hoses and the connection are undamaged, tight and leak free.

The seals and gaskets of the manifold are considered normal wear parts and must be replaced from time to time. If the manifold's piston valves are not sealing or shows to be leaking, the pistons valves can easily be replaced and are available as a spare part. Please refer to the manifold accessory section of the REFCO catalog.

After installing spare parts to the manifold it is necessary to test the manifold for leaks before the next use.

## Disposal of manifold

Dispose of the manifold according to the rules and regulations of the country of use.

## Spare Parts and Accessories

Description	Designation	Part number
Handwheel red	M2-7-SET-R	4677826
Handwheel blue	M2-7-SET-B	4677834
Complete valve set	M2-10-95-R/10	4662607
Piston incl. gaskets	M4-6-04-R/10	4662624
Sight glass set	M4-6-11	4491018
Battery compartment cover	DIGIMON-BATTERY-COVER	4676374
Tool for sight glass	M4-6-11-T	4493169
Plastic case	DIGIMON-CASE	4676497
External K-type thermocouple	DIGIMON-SENSOR-K-TYPE	4681394
Clamp thermocouple K- type	DIGIMON-CLAMP	4681466