**Quick Start**

1. Install six AA batteries into rear battery compartment. Batteries included in packaging. Press the center blue button for 1 second to turn on your new manifold.
2. Connect hose and pipe clamps to the manifold and the system.
3. See real-time pressure and temperature measurements all at once!

**Functions**

**Superheat and Subcooling**

1. Select the appropriate refrigerant using the REFRIGERANT button.
2. Connect EPA approved refrigerant hoses to low and high side on SMAN460. Plug Type K thermocouple pipe clamps to SLT and LLT.
3. Connect your SMAN460 to the system.
4. Superheat: Hand tighten side hose to suction line service port. Place the SLT pipe clamp thermocouple on the suction line between the evaporator and compressor; no closer than 6 inches to ensure accurate readings. Subcooling: Hand tighten side hose to liquid line service port. Attach the LLT pipe clamp thermocouple on the liquid line between the condenser and expansion valve (TXV), close to the service port as possible.
5. Power on your new manifold.
6. Press to zero atmospheric pressure. 
7. Hold 1 second to enable wireless functionality.
8. Press up or down arrow to adjust values.
9. Turn on your new manifold. 
10. Press to zero atmospheric pressure.

**Target Superheat**

Target Superheat is useful for charging fixed or air conditioned systems. Your SMAN460 can receive real time wet bulb (WDB) and dry bulb (DB) temperature measurement to calculate real time target superheat. The WDB and ODDB values can be entered both manually or automatically as are the case with the following steps.

1. Press Target SH button to enter Target SH setup mode. SMAN will search for last connected wireless instrument and automatically connect if found. SMAN will then enter search and sync to a new instrument. 
2. Press up or down arrow to adjust values.
3. Set Target SH button to enter Target SH setup mode. SMAN will search for last connected wireless instrument and automatically connect if found. SMAN will then enter search and sync to a new instrument.
4. Press up or down arrow to adjust values.
5. Enter the desired vacuum and stabilization levels. See Set Vacuum instructions.
6. Press to enter Target Superheat setup mode.

**Certifications**

- FCC ID: VEARF915A
- C-Tick (N22675)
- CE
- RoHS Compliant

**Description**

Your SMAN460 is the top of the line Wireless 4 Port Manifold and Micron Gauge for HVAC professionals. See all your pressures and temperatures at the same time on the redesigned large display with bright blue backlight. SMAN460 combines high precision, absolute pressure sensors, a superheat/subcooling calculator, true micron gauge for vacuum, and dual temperature measurements. Your SMAN460 calculates and displays your target superheat and actual superheat to verify proper charge. SMAN460’s large 3/8” Vacuum port and true 3/8” bore throughout the block allow for quicker recovery and evacuations.

Pressurization is designed to meet the demands of HVAC field service with a rugged rubber boot for durability, a strong metal hanger for easy storage and a form fitting, water resistant, padded nylon pouch.

**Controls**

1. Insert Type K thermocouple plugs here.
2. Temperature calibration pots.
3. Press to zero atmospheric pressure.
4. Press to calibrate to refrigerant.
5. Press/hold to cycle through refrigerants.
6. Press to confirm selection.
7. Hold 1 second to enable wireless functionality.
8. Press to calibrate to refrigerant tank.
9. Press up or down arrow to adjust values.
10. Press to turn on your new manifold.
11. Hold 1 second to power on or off. Press to toggle backlight.
12. Press to enter Target Superheat setup mode.
13. Turn clockwise to close High side port.
14. Turn clockwise to close Low side port.
15. Turn clockwise to close 3/8" Vacuum port.
16. Turn clockwise to close Refrigerant port.

**Pulling a Vacuum**

- Follow all manufacturers’ evacuation procedures over these instructions.
- 1. Connect your SMAN460 to your vacuum pump and the system, then power on your SMAN460.
- 2. Freeze vacuum alarms. Please note when you’re ready for your desired vacuum and stabilization levels. See Set Vacuum Alarms instructions below.
- 3. Pull a vacuum on the system. SMAN460 will automatically sense the negative pressure and begin to display in inHg. Once the vacuum levels are low enough, the display will automatically change to your desired vacuum level. See Set Vacuum Alarms instructions below.
- 4. The rate at which the vacuum levels are changing will be displayed in microns per minute. The smaller the rate of change, the closer you are to stabilization.

**Set Vacuum Alarms**

1. Hold ALARM for 1 second to enter Alarm Mode. The first digit of U.S. alarm will blink.
2. Use ARROWS to change the blipping number. Press ENTER to lock in a digit and move to the next one. Repeat for all U.S. alarm digits.
3. When U.S. alarm is complete, the system will display U.S. alarm input.
4. Use ARROWS to change the blipping number. Press ENTER to lock in a digit and move to the next one. Repeat for all U.S. alarm digits.
5. Hold ALARM until you hear a beep to save your alarm values and exit Alarm Mode. See Note below.

Note: Anytime while in Alarm Mode, you can press ALARM to toggle between alarm HI set and alarm LO set. Hold ALARM to save values and exit Alarm Mode. See Note below.

**Quick Reference**

- Vacuum (Microns of Mercury)
- Liquid Saturation Temperature
- Liquid Line Temperature
- Liquid Pressure
- Superheat
- Subcooling
Activate Vacuum Alarms When Pilling a Vacuum
Press 1 Press to activate low alarms. Default is 500 microns. Startpump will start when low alarm value is reached. SMAN 460 will beep and the stopwatch will start. From Standby to temperature measurements, vacuum and thermal saturation temperature, temperature and pressure sensors, vacuum and thermal saturation temperature, temperature and pressure sensors, vacuum and thermal saturation temperature, temperature and pressure sensors will be matched to a known and quality assurance level. Calibration accuracy will be 1% of reading ± 5 microns. Calibration accuracy will be 1% of reading ± 5 microns. The battery must be replaced when the 8s battery icon is empty. SMAN will display "low batt" and power off. Remove rear battery cover and replace with 6 AA batteries.

Battery Replacement
The battery must be replaced when the battery life indicator is empty. SMAN will display "low batt" and power off. Remove rear battery cover and replace with 6 AA batteries.

Cleaning the Micron Sensor
Over time, the vacuum of the SMAN 460 may become contaminated with dirt, oil, and other contaminants from pulling vacuums. 1. Never clean an object such as a cotton swab to clean the sensor, you may cause damage to the sensor. 2. Open the valve and cap all the ports except for the VAC port. 3. Drop enough isopropyl (rubbing) alcohol into the VAC port using a paper towel or cloth so that it can flow out contaminates. 4. Cap VAC port and gently shake your SMAN 460 upside down to clean sensors. 5. Turn right side up. Open a port to pour out the rubbing alcohol and open all ports to allow sensors to dry. Drying usually takes about an hour.

Using Different Refrigerants
You can use your manifold with different refrigerants. Be sure to purge your manifold and hoses before connecting to a system with a different refrigerant.

Limitied Warranty
This meter is warranted against defects in material or workmanship for two years from the date of purchase. If your meter should fail during this warranty period, Fieldpiece will repair or replace the defective unit, at its option, subject to verification of the defect.

FCC Compliance and Advisory
This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Specifications
- Power source: 3.7V lithium ion battery
- Battery life: 8 hours
- Memory: 1000 readings
- Display: 2 lines, 20 characters
- Operating temperature: -30°C to 50°C
- Storage temperature: -30°C to 70°C
- Humidity: 0% to 95%
- Dimensions: 170 x 70 x 35 mm
- Weight: 250 g
- Certifications: CE, FCC, RoHS

Other contaminants from pulling vacuums. 1. Never clean an object such as a cotton swab to clean the sensor, you may cause damage to the sensor. 2. Open the valve and cap all the ports except for the VAC port. 3. Drop enough isopropyl (rubbing) alcohol into the VAC port using a paper towel or cloth so that it can flow out contaminates. 4. Cap VAC port and gently shake your SMAN 460 upside down to clean sensors. 5. Turn right side up. Open a port to pour out the rubbing alcohol and open all ports to allow sensors to dry. Drying usually takes about an hour.

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