



## MEDICAL REFRIGERATORS Models

ARS1PV	ARS1PV456	ARS1ML			
ARG1PV	ARG1PV456	ARG1ML			
ARS3PV	ARS3PV456	ARS3ML			
ARG3PV	ARG3PV456	ARG3ML			
ARS6PV	ARS6PV456	ARS6ML			
ARG6PV	ARG6PV456	ARG6ML			
ARS8PV	ARS8PV456	ARS8ML			
ARG8PV	ARG8PV456	ARG8ML			
ARS12PV	ARS12PV456	ARS12ML			
ARG12PV	ARG12PV456	ARG12ML			
ARS15PV	ARS15PV456	ARS15ML			
ARG15PV	ARG15PV456	ARG15ML			
ARS18PV	ARS18ML	MLRS18MC	ARS18MLMC	R18AS	HCRG19
ARS18PV456					
ARG18PV	ARG18ML	MLRG18MC	ARG18MLMC	R18AG	HCRG18
ARG18PV456					
ARG31PVBIADA,	ARG31PVBIADA456	ARG31MLBIADA			
ARS32PVBIADA	ARS32PVBIADA456	ARS32MLBIADA			
ARG61PVBIADA	ARG61PVBIADA456	ARG61MLBIADA			
ARS62PVBIADA	ARS62PVBIADA456	ARS62MLBIADA			

### ***User Manual***

**BEFORE USE, PLEASE READ AND FOLLOW ALL SAFETY RULES AND OPERATING INSTRUCTIONS**

*Write Model and Serial Numbers here:*

*Model:*

*Serial No.:*

# EQUIPMENT SAFETY

**Your safety and the safety of others are very important.**

We have provided many important safety messages in this manual and on your unit. Always read and obey all safety messages.



This is the Safety Alert Symbol. The symbol alerts you to potential hazards that can kill or injure you and others. All safety messages will follow the Safety Alert Symbol and either the words "DANGER" or "WARNING".



DANGER means that failure to heed this safety statement may result in severe personal injury or death.



WARNING means that failure to heed this safety statement may result in extensive product damage, serious personal injury, or death.

All safety messages will alert you about the potential hazard, tell you how to reduce the chance of injury, and let you know what can happen if the instructions are not followed.

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# EQUIPMENT SAFETY



Before the equipment is used, it must be properly positioned and installed as described in this manual, so read the manual carefully. To reduce the risk of fire, electrical shock or injury when using this equipment, follow basic precautions, including the following:



- Plug into a grounded 3-prong outlet, do not remove grounding prong, do not use an adapter, and do not use an extension cord.
- Replace all panels before operating.
- It is recommended that a separate circuit serving only your unit be provided. Use receptacles that cannot be turned off by a switch or pull chain.
- Never clean the equipment parts with flammable fluids. These fumes can create a fire hazard or explosion. And do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other pieces of equipment. The fumes can create a fire hazard or explosion.
- Before proceeding with cleaning and maintenance operations, make sure the power line of the unit is disconnected.
- Do not connect or disconnect the electric plug when your hands are wet.
- Unplug the unit or disconnect power before cleaning or servicing. Failure to do so can result in electrical shock or death.
- Do not attempt to repair or replace any part of your unit unless it is specifically recommended in this manual. All other servicing should be referred to a qualified technician.
- These units are CFC- and HFC-free and contains a small quantity of Isobutane (R600a), and the ARS18PV and ARG18PV are CFC- and HFC-free and contain a small quantity of propane (R290). Both are environmentally friendly, but flammable. They do not damage the ozone layer, nor do they increase the greenhouse effect. Care must be taken during transportation and setting up of a unit that no parts of the cooling system are damaged. Leaking coolant can ignite and may damage the eyes.
- In the event of any damage:
  - Avoid open flames and anything that creates a spark,
  - Disconnect from the electrical power line,
  - Air the room in which the unit isolated for several minutes, and

- Contact the Service Department for advice.
- The more coolant there is in a unit, the larger the room it should be installed in. In the event of a leakage, if the unit is in a small room, there is the danger of combustible gases building up. For every ounce of coolant, at least 325 cubic feet of room space is required. The amount of coolant in the unit is stated on the data plate inside the unit. It is hazardous for anyone other than an Authorized Service Person to carry out servicing or repairs to this piece of equipment.
- Take serious care when handling, moving, and using the unit to avoid either damaging the refrigerant tubing or increasing the risk of a leak.
- Replacing component parts and servicing shall be done by factory authorized service personnel so as to minimize the risk of possible ignition due to incorrect parts or improper service.

**⚠ WARNING ⚠**

FOLLOW WARNING CALLOUTS BELOW ONLY WHEN APPLICABLE TO YOUR MODEL

- Use two or more people to move and install **unit**. Failure to do so can result in back or other injury.
- To ensure proper ventilation for your **unit**, the front of the unit must be completely unobstructed. Choose a well-ventilated area with temperatures above 60°F (16°C) and below 90°F (32°C). [For optimal performance, install the unit where the ambient temperature is between 72° and 78°F (23°-26°C).] This unit must be installed in an area protected from the elements, such as wind, rain, water spray or drips.
- The unit should not be located next to ovens, grills or other sources of high heat.
- The unit must be installed with all electrical, water and drain connections in accordance with state and local codes. A standard electrical supply (115 V AC only, 60 Hz), properly grounded in accordance with the National Electrical Code and local codes and ordinances, is required.
- Do not kink or pinch the power supply cord of the unit.
- The size of the fuse (or circuit breaker) should be 15 amperes.
- It is important that the equipment be leveled in order to work properly. You may need to make several adjustments to level it.
- All installations must be in accordance with local plumbing code requirements.
- Make certain that the pipes are not pinched, kinked or damaged during installation.
- Check for leaks after connection.
- Never allow children to operate, play with or crawl inside the unit.
- Do not use solvent-based cleaning agents or abrasives on the interior. These cleaners may damage or discolor the interior.
- Use this equipment only for its intended purpose as described in this *Instruction Manual*.
- Keep fingers out of the “pinch point” areas. Clearances between the door and cabinet are necessarily small. Be careful closing the door when children are in the area.

**⚠ DANGER ⚠ Risk of child entrapment!**

Child entrapment and suffocation are not problems of the past. Junked or abandoned appliances are still dangerous, even if they will “just sit in the garage a few days”.

*Before discarding your old refrigerator:*

- *Take off the doors*
- *Leave the shelves in place so that children may not easily climb inside.*

**-SAVE THESE INSTRUCTIONS-**

# INSTALLATION INSTRUCTIONS

## Before Using your Equipment

- Remove the exterior and interior packing.

*CAUTION: After unpacking you MUST allow this unit to stand upright for at least 2 hours to allow the lubricant and refrigerant to drain back into the compressor and stabilize. Failure to do so may adversely affect performance and the lifetime of this unit.*

- Clean the interior surface with lukewarm water using a soft cloth.

## Installation of your Equipment

**NOTE:** Do not store or install the unit outdoors.

- Units with BI in their suffix are designed to be built-in or recessed installation. The rest of the units listed in this manual are designed for freestanding use. All models are for indoor use only.

*CAUTION: This equipment is designed for the storage of medicine or other medical products. Do not store beverages or perishable food in this unit.*

- Place the refrigerator on a floor that is strong enough to support it when it is fully loaded. To level the unit, adjust the front leveling legs.
- For free-standing installation, allow at least 5 inches (127mm) of space between the back, top, and sides of the unit. This allows the proper air circulation to cool the compressor and condenser for energy saving. Even for recessed or built-in installation (units with “BI” in the model number), it is a must to keep ¼” (6.35mm) of space on each side, and 2” (51mm) on the top and at the rear. The air vent at the front of the unit must never be covered or blocked in any way.

**NOTE:** It is recommended that you do not install the unit near an oven, radiator or other heating source. Direct sunlight may affect the acrylic coating and heat sources may increase electrical consumption. Don’t install in a location where the temperature will fall below 60°F (16°C). For best performance, do not install the unit behind a cabinet door or block the base grille.

- Avoid locating the unit in moist areas.
- Plug the unit into an exclusive, properly grounded wall outlet. Do not under any circumstances cut or remove the third (ground) prong from the power cord. Any questions concerning power and/or grounding should be directed toward a certified electrician or an authorized service center.

## Electrical connection



Improper use of the grounded plug can result in the risk of electrical shock. If the power cord is damaged, have it replaced by a qualified electrician or an authorized service center.

This unit should be properly grounded for your safety. The power cord of this unit is equipped with a three-prong plug which mates with standard three-prong wall outlets to minimize the possibility of electrical shock.

Do not under any circumstances cut or remove the third (ground) prong from the power cord supplied. For personal safety, this equipment must be properly grounded.

This unit requires a standard 115/120 Volt AC ~ 60Hz three-prong grounded electrical outlet. Have the wall outlet and circuit checked by a qualified electrician to make sure the outlet is properly grounded. When a standard 2-prong wall outlet is encountered, it is your responsibility and obligation to have it replaced with a properly grounded 3-prong wall outlet. To prevent accidental injury, the cord should be secured behind the unit and not left exposed ordangling.

The unit should always be plugged into its own individual electrical outlet which has a voltage rating that matches the rating label on the unit. This provides the best performance and also prevents overloading house wiring circuits that could cause a fire hazard from overheating. Never unplug the unit by pulling on the power cord. Always grip the plug firmly and pull straight out from the receptacle. Repair or replace immediately all power cords that have become frayed or otherwise damaged. Do not use a cord that shows cracks or abrasion damage along its length or at either end. When moving the equipment, be careful not to damage the power cord.

### **Electrical connection**

Because of potential safety hazards under certain conditions, it is strongly recommended that you do not use an extension cord with this equipment. However, if you must use an extension cord it is absolutely necessary that it be a UL/CUL-Listed, 3-wire grounding type equipment extension cord having a grounding type plug and outlet and that the electrical rating of the cord be 115 volts and at least 10 amperes.

### **Reversing the Door**

Unless ordered with option “LHD,” your unit has shipped with a right hand self-closing door swing. If you wish to reverse the door to open from the opposite direction, follow the steps listed below.

**NOTE:** Doors on units certified to NSF/ANSI 456 or with “DL2B” factory-installed data loggers are factory-reversible only and cannot be changed in the field.

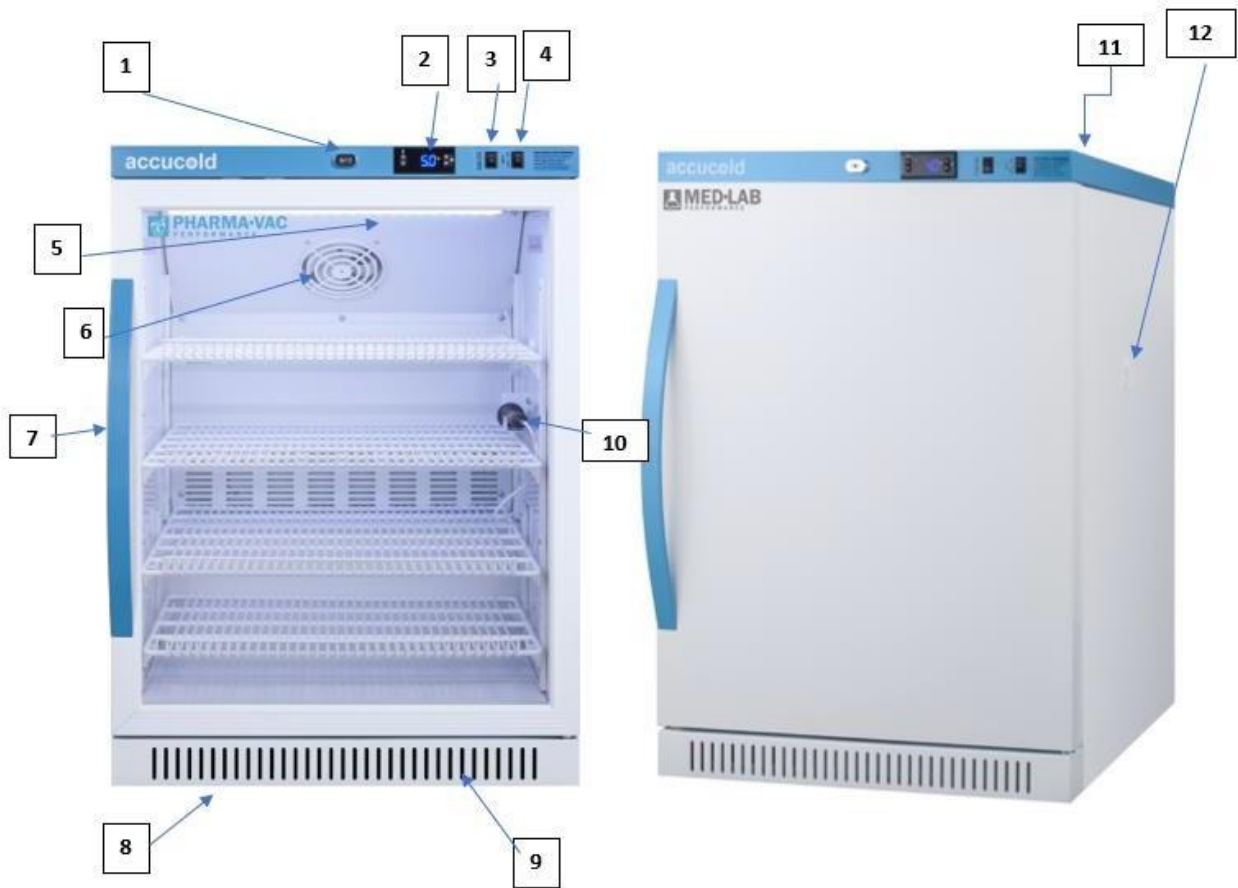
1. Carefully lay the unit on its back and remove the two front leveling legs
2. Remove the two hex head screws that connect the door hinges to the body on the bottom of the unit
3. Remove the two flathead screws that connect the hinge assembly to the bottom of the door
4. Remove the white hinge from the square rod
5. Slide the door towards the bottom until it is free of the top hinge
6. Unscrew the top hinge pin from the unit and reinstall on the left side
7. Flip the door so the handle is now on the right side
8. Push the door onto the top hinge piece.
9. Reinstall the hinge assembly on the left side bottom of the door using the flathead screws
10. Push the white hinge onto the square rod at a position of 9 o'clock
11. Turn the white hinge clockwise until the holes line up with screws located on the bottom of the unit
12. Replace the hex head screws and front leveling legs

**NOTE:** Once the door has been reversed, the Pharma-Vac or Med-Lab sticker will be upside down. You can remove and reapply to the preferred position. If you would like a replacement sticker, contact our parts department at [parts@summitappliance.com](mailto:parts@summitappliance.com).

**CAUTION:** *After setting the unit upright you MUST allow this unit to stand upright for at least 2 hours to allow the lubricant and refrigerant to drain back into the compressor and stabilize. Failure to do so may adversely affect performance and the lifetime of this unit.*

**Stabilization Period** - Prior to use, the unit shall be allowed to run and stabilize for at least twenty-four hours.

# LOCATION OF PARTS



- |                                 |  |
|---------------------------------|--|
| 1. Keyed lock                   | 8. Leveling legs   |
| 2. Microprocessor control panel | 9. Kickplate   |
| 3. Reset switch                 | 10. Temperature sensor in glycol bottle  |
| 4. Light switch                 | 11. Dry contacts (located in rear)   |
| 5. Internal light               | 12. Access port – for added monitoring devices of the useable area inside the unit |
| 6. Internal fan                 |  |
| 7. Handle                       |  |

# OPERATION – QUICK SETUP GUIDE

This section explains how to operate your unit. For more detailed instructions on changing the parameters of the control panel, see page 10.

Once plugged in, the display will show the product temperature inside the refrigerator and the compressor will start to run (an indicator light on the control panel will turn on at the same time).

**NOTE:** This product utilizes two sensors: A Product Sensor (display sensor) and an Air Sensor (control sensor).

For maximum performance, the refrigerator controls use a separate air sensor. This allows it to rapidly respond to product loading and door openings. You may need to adjust the controller lower than the desired product temperature as the air temperature needs to be lower to pull the product temperature down.

The temperature displayed is the product temperature recorded by the product sensor in glycol inside a vial located in refrigerator. As the refrigerator cools to the set point, the number on the display will decrease accordingly. The product vial will take longer to cool than the air in the refrigerator.

If power is cut off, wait for at least 5 minutes before plugging the unit in again to avoid damaging the compressor.

## Control and Temperature Measurement Device (TMD)

### CONTROL PANEL



## Adjusting the Operating Temperature

To change the set point, press the SET key and the set-point temperature will be displayed. To change the set point, within 10 seconds, press the up or down arrow key until the desired temperature is displayed. The new set point will be memorized when you push the SET key again.

Glass door models come preset to 4°C and solid door models are factory set to 5°C. Adjust the temperature up or down to achieve your desired product temperature the displayed temperature.

## High/Low Temperature Alarm

If the temperature in your refrigerator drops below the air low alarm set point, an alarm will sound. The front panel display will flash **LO** and the current temperature will be displayed alternately. Also, if the temperature rises above the high air alarm setpoint an alarm will sound.

The front panel display will flash **HI** and the current temperature will be displayed alternately. if the temperature rises above the high product alarm setpoint an alarm will sound. The front panel display will flash H2 and the current temperature will be displayed alternately. There could be a number of reasons for this which should be investigated immediately.

The refrigerator should be monitored to check that it is returning to the correct temperature. Set the alarms values to meet your requirements in the parameter set-up and settings.

## Power Failure Alarm

After plugging in the equipment, move the “Reset Switch” located at the front of the unit to the down position. When electrical power to the equipment is lost, an alarm will sound, and it will silence when the power is restored. Note the alarm is battery-powered and has a limited time to alarm.

## Min/Max Temperature Recording

- Once connected to the power supply, your unit records the maximum high and minimum low temperatures reached inside the cabinet. The display will show the last **HI** and **LO** temperatures recorded until the refrigerator is reset.
- To display the **HI** reading, press and release the **HI/LO** button. To display the **LO** reading, press and release the **HI/LO** button again.

## To Reset the Min/Max Temperature Recording

Hold the **HI/LO** button for 6 seconds. To confirm the operation, the display starts blinking and the buzzer sounds. After 5 seconds, the normal display will be restored.

## Changing the Temperature Display

This unit ships with the temperature being displayed in Celsius. If you prefer the display in Fahrenheit, you will need to enter your password and adjust the parameters. Press and hold the “Set” button until it flashes “Pas,” then enter the password (factory default is “15”) using the up and down arrows. Once you enter the password, press “Set” about 25 times until “CF” displays, then press the down arrow until the control displays “°F”, then press “Set.” Wait 6 seconds and the setting will be recorded, with your unit resuming normal operation.

## Interior Light

Your unit includes an LED light that will automatically illuminate when the door is opened. If you would like to keep the light on when the door is closed, push the switch to the “on” position.

## Door Alarm

If the door of the refrigerator is left open for more than 3 minutes, an audible alarm will sound. The alarm will be turned off automatically when the door is closed.

## Remote Alarm

The electronic controller is equipped with dry contacts for alarm forwarding to an external remote alarm system (terminal block on the back of the refrigerator).

**NOTE:** The remote contacts are normally “closed” and “open” upon alarm. To change the output to normally “open” and “closed” on alarm see item “C12” of the Table of Parameters and Factory Settings. Change the “C12” setting to “00” in lieu of “01”.

## NSF 456 CERTIFIED models (Models with 456 Suffix) with NIST Calibration

These models are equipped with a NIST calibrated temperature measurement device (TMD) also referred to as the Control and Temperature Measurement Device (TMD) that simultaneously displays current interior temperatures and provides a visual and audible signal when the temperature inside the unit falls outside the set temperature range.

All NSF456 units ship with a two-year certificate of calibration that comes inside your unit. Keep this certificate stored safely for your records. Accucold® offers re-calibration services through their ISO 17025:2017 certified calibration laboratory. It is recommended to have your TMD re-calibrated every two years (or one year, depending on your state’s health department guidelines).



For more information on how to have your device re- calibrated or to replace a valid certificate, contact us at [calibration@summitappliance.com](mailto:calibration@summitappliance.com).

**Probe Port**

This unit is equipped with a 3/8” probe port and plug, which can accept additional monitoring devices. It is advisable to position the additional temperature monitoring device in the net usable area (inside ideally near the product sensor).

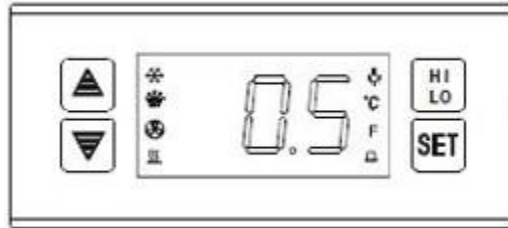
**Summary of Alarm Types**

ALARM TYPE	DISPLAY FLASH
Air temperature high alarm	HI delay alarm
Air temperature low alarm	LO delay alarm
Air temperature sensor short circuited	1H in time alarm
Air temperature sensor open circuited	1L in time alarm
Product temperature sensor short circuited	2H in time alarm
Air temperature sensor open circuited	2L in time alarm
Product temperature high temp alarm	H2 delay alarm
Product temperature low temp alarm	L2 delay alarm
Electric supply off alarm	No display – alarm in time
Door open delay alarm	Dr flash and delay alarm

**Storage of Articles**

- At maximum loading level, the content should not block the refrigerator’s air flow or be loaded above the load line.
- Leave space around the contents to allow a smooth flow of cold air inside the cabinet. To prevent freezing, be sure the articles do not touch the back of the interior cabinet.
- Store articles away from the inner fan.
- Shelves can be adjusted to allow proper airflow around the products being stored.

# DETAILED TEMPERATURE CONTROLLER GUIDE



## Front Panel Operation

### Set temperature (compressor's top temperature) adjustment:

1. Press the **SET** button, the set temperature is displayed, then press the UP or DOWN arrow to store and memorize. Press the **SET** button to exit the adjustment status and display the product temperature. If no more buttons are pressed within 6 seconds, the refrigerator product temperature will be displayed.
2. (Set temperature adjustment range: Parameter E1~E2)

### Manually start/stop defrosting:

Press **HI/LO** button, then press **SET** button and hold for 6 seconds to enter defrost status or to stop defrost.

### Display the sensor temperature (C13):

Press the **DOWN** arrow, the product temperature (or cabinet temperature) will flash display. After 6 seconds, will resume normal display.

### Refrigeration LED:

During refrigeration the cooling snowflake LED is on. When temperature is constant, the LED is off.

### Defrost LED:

During defrosting (if activated), the defrost LED is on. During the delay after defrosting, the LED flashes.

### Parameter set-up and settings (for all settings other than temperature setpoint):

Press **SET** button and hold for 6 seconds to enter the parameter setting (flash and display PAS). After entering the correct password (factory default is 15), press **SET** and the display will show E1, E2, ...~do3 PAS in sequence. Press the **UP** or **DOWN** arrow and the value of the parameter will be displayed and can be modified and stored. If no other buttons are pressed within 6 seconds, it will exit, and the new value will be stored. NOTE: Only when in the inner parameter menu (display PAS) and the correct password is entered can the parameter value be adjusted. If the wrong password is entered, the parameter modification will be exited, although the set temperature adjustment is still active. If you forget the password, you will need to resume the factory default settings.

The following are examples of how to change common settings:

- A. **Enter Password** - Press and hold the “Set” button 6 seconds until it flashes “Pas”, then enter the default password “15” using the up and down arrows. When “15” is reached press the “Set” button.
- B. **Change display to “°F” in lieu of “°C”** - After entering the password press the set button about 25 times to reach the “CF” display, then press the up or down arrow until the control displays “°F” then press set. Wait 6 seconds and it will be set and the unit will go back to normal operation.
- C. **High Air Alarm Settings** - After entering the password press the set button until you reach the “C1” display, then press the up or down arrow until the control displays your desired setting then press set. Wait 6 seconds and it will be set and the unit will go back to normal operation.
- D. **Low Air Alarm Settings** - After entering the password press the set button until you reach the “C2” display, then press the up or down arrow until the control displays your desired setting then press set. Wait 6 seconds and it will be set and the unit will go back to normal operation.
- E. **High Product Alarm Settings** - After entering the password press the set button until you reach the “C3H” display, then press the up or down arrow until the control displays your desired setting then press set. Wait 6 seconds and it will be set and the unit will go back to normal operation.
- F. **Low Product Alarm Settings** - After entering the password press the set button until you reach the “C3L” display, then press the up or down arrow until the control displays your desired setting then press set. Wait 6 seconds and it will be set and the unit will go back to normal operation.

To change any other parameters in the “Factory Settings” enter the Password and then press the “Set” button until the desired Parameter is displayed, then press the up or down arrow until the desired setting is displayed then press the “Set” key again. Wait 6 seconds and it will be set and the unit will go back to normal operation

### **Recording the highest and lowest temperature**

Once turned on and after the C5 delay, the unit will start to record the highest and lowest temperature; the record will be refreshed at any time. The values will be kept in memory even after the power is turned off. Press the **HI/LO** button to see the highest temperature recorded. Press it again to see the lowest temperature. Holding the **HI/LO** button for 6 seconds will cause the display to flash and a buzzer to sound; the previous highest and lowest temperature readings will be cleared, and a new record will begin. (Highest and lowest temperature recording instructions: When parameter F4=0, the unit can record highest and lowest temperature at any time. When F4=1,2,3, during defrost and delay locking 20 minutes, highest and lowest temperatures are not recorded. During air sensor failure, highest and lowest temperatures are not recorded.) When set C13=00, the temperature in the liquid bottle is recorded; when set C13=01, the temperature of the air in the cabinet is recorded. The product temperature corresponds to the temperature of the liquid in the bottle.

### **Factory default resumption**

Press and hold the **DOWN** arrow; at the same time, press the **UP** arrow and hold for 6 seconds. The display will flash and show 888. At this time, all parameters will resume factory default values. After 6 seconds, normal operational mode will return.

### **To check or change the password:**

Enter the inner parameter menu (PAS display) and enter the correct password. After entering the inner parameter PAS, press the **UP** or **DOWN** arrow to display and change the password, then press **HI/LO** to confirm and store the new password.

**Table of Parameters and Factory Settings**

Parameter	Function	Set Range	Default	Parameter	Function	Set Range	Default
<b>Set</b>	Setpoint		4.0°C For glass door models 5.0°C For solid door models	<b>C3H</b>	Product Temp. High Temp. Alarm	-19.9~20.0°C / -3.8~68.0°F	8.0°C / 46.4°F
<b>PAS</b>	Password	00~99	15	<b>C3L</b>	Product Temp. Low Temp. Alarm	-19.9~20.0°C / -3.8~68.0°F	2.0°C / 3.6°F
<b>E1</b>	Lowest set point limit	-19.9°C / 3.8°F ~ set temp.	2.0°C / 35.6°F	<b>C4</b>	Hysteresis Alarm	0.1~20.0°C / 1.8~36.0°F	0.1°C / 0.18°F
<b>E2</b>	Higher set point limit	20.0°C / 68.0°F ~set temp.	10.0°C / 50°F	<b>C5</b>	Start-up Temp. Alarm delay	00~99 min	60 min
<b>E3</b>	Temp. Hysteresis	0.1~20.0°C / 0.2~36.0°F	2.0°C / 3.6°F	<b>C6</b>	Temp. Alarm Delay	00~99 min	0 min
<b>E40</b>	Turning On delay time	00 ~10 min.	3 min.	<b>C7</b>	Power Off relay Alarm	00=do not alarm / 01= alarm	01
<b>E41</b>	Comp. start delay time	00 ~10 min.	3 min.	<b>C8</b>	Alarm relay close after, muffle alarm relay switch	00=open / 01=close	00
<b>E5</b>	Offset on Air Temperature	-10.0~10.0°C / -18.0~18.0°F	1.0°C / 1.8°F For 1 and 3 cu. Ft. models 2.0°C / 3.6°F For 6, 8, 12, 15 and 18 cu. Ft. models	<b>C9</b>	Restart time after buzzer mute	00=do not start / 01 ~30 min=restart time	10 min
<b>E6</b>	Offset on Product Temp.	-10.0~10.0°C / -18.0~18.0°F	0.0°C / 32°F	<b>C10</b>	Comp. Force stop time	01~99 min	99 min

<b>F0</b>	Defrost Type	00=defrost by turning of comp.	00	<b>C11</b>	Comp. Force Running Time	00=comp. Stop / 01-99min=starting time	0 min
<b>F1</b>	Max defrost duration	01~60 min.	20 min.	<b>C12</b>	Alarm Output Type	00=contact actuation when alarm / 01=contact disconnect when alarm	01
<b>F2</b>	Defrost Interval (XXhr/time)	00~24 hr.	00	<b>C13</b>	Normal State temp. display type	00=liquid bottle temp / 01=cabinet air temp.	00
<b>F4</b>	Temp. displaying on screen when defrost	00= normal Temp; 01=latest Temp. 02=Fixed Temp. ; 03=showing "dEF" on screen	00	<b>CF</b>	Temperature Unit	°C=Celsius / °F=Fahrenheit	°C
<b>C1</b>	High Temp Air Alarm	C2~20.0°C / 68.0°F	9.0°C / 48.2°F	<b>do1</b>		00=do not alarm / 01=99 min=delayed alarm	02 min
<b>C2</b>	Low Temp Air Alarm	-19.9°C / 3.8°F~C1	1.0°C / 33.8°F	<b>do2</b>	Comp. status when door open	0=stop / 01=original status	0 1
				<b>do3</b>	Light status when door open	00=start / 01=original status	0 1

# FUNCTION DETAILS

**Temperature Control:** After turning on the unit and reaching the delay time (parameter E40), the compressor starts operating when the cabinet temperature is higher than (set temperature + hysteresis) and will be off when the cabinet temperature is lower than the set point temperature. To protect the compressor, it cannot be re-started unless the time after the compressor stops is longer than the delay time (Parameter E41).

**Defrost Control:** After running for a defrost interval set time (parameter F2), the unit will enter defrost and the compressor stops. When the defrost duration time (parameter F1) ends, it will exit defrost status. After a defrost period ends, there will be 2 minutes of dripping time before the unit can enter refrigeration status.

- When defrost interval F2 is set to “00”, the automatic defrost by turning off compressor will be cancelled.
- When setting parameter F4 is set to “0”, the temperature will be displayed normally during defrost.
- When setting parameter F4 is set to “1”, the cabinet temperature is locked during defrost, and the last value before defrost is displayed. When defrost ends, normal display will resume after temperature display 20 minutes delay (or cabinet temperature lower than the set temperature). The defrost LED flashes during delay.
- When setting parameter F4 is set to “2”, the set temperature will be displayed during defrost.
- When defrost ends, normal display will be resumed after 20 minutes delay (or cabinet temperature lower than the set temperature). The defrost LED flashes during delay.
- When setting parameter F4 is set to “3”, dEF will be displayed during defrost. When defrost ends, normal display will be resumed after 20 minutes delay display dEF (or cabinet temperature lower than the set temperature). The defrost LED flashes during delay.

**Alarm Control:** After turning on for the first time, the unit will need to reach the C5 delay time setting, then the high/low temperature alarm function can be triggered (C1, C2, C3). After passing C5 delay, when the cabinet temperature is abnormal (for example higher than the temperature alarm C1 or lower than temperature alarm C2) and duration more than alarm delay time C6, the unit will enter alarm status, alarm start. When high temperature alarm alternate display H1 and cabinet air temperature, the compressor starts to run. When low temperature alarm, will alternate display L0 and cabinet temperature, the compressor stops. When cabinet temperature is higher than the (low temperature alarm value C2 + alarm hysteresis C4), the low temperature alarm ends. When cabinet temperature is lower than (high temperature alarm value C1 – alarm hysteresis C4), the high temperature alarm ends.

When the product sensor temperature is greater than or equal to the product temperature high temperature alarm value C3 and duration more than alarm delay time C6, unit enters alarm status, and starts the alarm, alternate display H2 and cabinet temperature. When the product sensor temperature is less than or equal to the (high temperature alarm value C3 – alarm hysteresis C4), it will end the high temperature alarm.

When the electric supply is off, flash and display EEL and alarm. When setting do1 is set at “00”, unit will not alarm when door is open. When setting do1 is set at “0”, once unit reaches the delay time, it will flash and display “dr alarm”, press random button to cancel.

If setting C7 is set to “0”, then the units relay does not alarm when power is off.

If setting C8 is set to "0", then after alarm is canceled, the alarm relay does not close. If C9 is set to "0", then after the alarm cancel button is pushed, the buzzer does not restart.

If setting other numbers, then after reaching delay time, buzzer sounds one more time. (Under the condition of alarm not terminating)

**Abnormal work mode:** When air sensor is short-circuited or high temperature over limit ( $> 66^{\circ}\text{C}/151^{\circ}\text{F}$ ), "1H" is displayed; when air sensor is open-circuited or low temperature over limit ( $< -40^{\circ}\text{C}/^{\circ}\text{F}$ ) "1L" is displayed. Compressor will enter the force running mode, according to C10, C11 set parameters running in sequence.

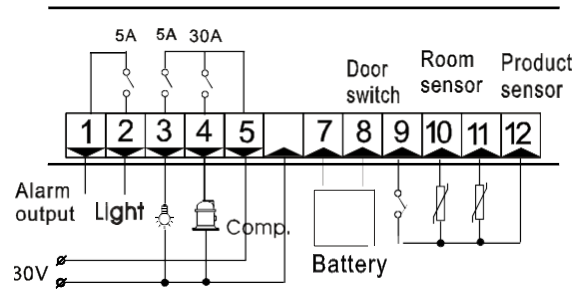
When product sensor is short-circuited, open-circuited or over limit ( $> 66^{\circ}\text{C}/151^{\circ}\text{F}$ ), alternate display 2H and air temperature, the product temperature sensor open-circuited or low temperature over limit ( $< -40^{\circ}\text{C}/^{\circ}\text{F}$ ), alternate display 2L and air temperature.

### Instrument running alarm indication list

Alarm type	Compressor running	Display flash
Refrigerator high temp. alarm	Compressor on	H1 delay alarm
Refrigerator low temp. alarm	Compressor off	L0 delay alarm
Air temp. sensor short-circuited	Press C10, C11 to run the comp.	1H in time alarm
Air temp. sensor open-circuited	Press C10, C11 to run the comp.	1L in time alarm
Product temp. sensor short-circuited		2H in time alarm
Product temp. sensor open-circuited		2L in time alarm
Product temperature high temp.	Limit alarm	H2 delay alarm
Product temperature low temp.	Limit alarm	L2 delay alarm
Electric supply off alarm		No display and alarm in time
Door open delay alarm		Dr flash and delay alarm

When the door is open, the light switch can turn the light on and off.

## Circuit Diagram



When the door is closed, normal close contact  
When the door is open, contact is disconnected

Notes for installation:

1. Sensor leads must be kept separately from main voltage wires in order to avoid high frequency noise induced. Separate the power supply of the loads from the power supply of the controller.
2. When installing, the sensor must be placed with the head upward and the wire downward.
3. The temperature controller must not be installed in an area where water drips.



# CLEANING AND MAINTENANCE

Before cleaning, it is essential that you unplug the unit from the power line and transfer the contents where they can be stored and monitored at the correct temperatures.

- Wash the inner compartment with warm water and neutral detergent. DO NOT allow the control panel, cables or plug to get wet. NEVER use corrosive detergents, wire brushes, or abrasive scourers to clean your refrigerator. NEVER use metal or sharp implements to remove debris.
- Dry all surfaces thoroughly.
- To ensure trouble-free operation, the condenser should be cleaned every three months where appropriate using a vacuum hose. The condenser is located at the back of the cabinet. In exceptionally dusty locations, the condenser should be cleaned more often.

When transporting the unit, try to keep it vertical with angle of inclination between sides of the refrigerator and the horizontal plane not less than 50°. Otherwise the compressor may be affected, disrupting normal operation of the refrigerator.

# TROUBLESHOOTING

You can solve many common problems easily, saving you the cost of a possible service call. Try the suggestions below to see if you can solve the problem before calling the servicer.

Problems	Possible causes	Remedy
<i>The unit does not operate</i>	<i>Bad connection of plug or burnt out fuse</i>	<i>Unplug the power cord and re-connect the plug to power supply or replace with a new fuse</i>
<i>Abnormal operation of the compressor or there is a buzzing sound</i>	<i>The power voltage is out of rated range</i>	<i>Disconnect the power supply immediately and reconnect with it after normal voltage. It is necessary to have a voltage stabilizer in case of poor power supply.</i>
<i>Compressor operates for a long time and no frost on the surface of the evaporator</i>	<i>Refrigeration system is at fault (leakage or blocked)</i>	<i>Call for service</i>
<i>There is frost or ice on the walls of the inner cabinet and internal temperature is too low, the compressor never stops running.</i>	<i>Thermostat does not work</i>	<i>Call for service</i>
	<i>The temperature setting of the thermostat is too low.</i>	<i>Adjust to a higher temperature</i>
<i>The internal temperature is too high, and the compressor never stops operating.</i>	<i>Bad heat dissipation and ventilation of condenser</i>	<i>Improve ventilation</i>
	<i>Too many warm items were put in at one time</i>	<i>Remove some goods so air can circulate</i>
	<i>Door is being opened too frequently during initial cool down</i>	<i>Permit the unit to cool down adequately, prevent product access during this</i>
<i>Too noisy</i>	<i>The unit is not level</i>	<i>Adjust the adjustable legs</i>
	<i>The fastener of the unit is loose</i>	<i>Tighten the loose fastener</i>
	<i>Pipe near the compressor are touching</i>	<i>Carefully separate the touching pipes</i>
<i>The side of unit is hot</i>	<i>The condenser in the side wall gives out heat as part of normal operation</i>	<i>Nothing to worry about.</i>
<i>Sometimes a light sound of water flowing will be heard</i>	<i>Refrigerant flowing inside the pipe.</i>	<i>Nothing to worry about.</i>

<i>There may be condensation on the glass door</i>	<i>High ambient temperature or humid conditions</i>	<i>Dry with a cloth</i>
<i>The display shows "So" and compressor does not run</i>	<i>The temperature sensor is open circuit</i>	<i>Call for service</i>
<i>The display shows "SC" and compressor does not run</i>	<i>The temperature sensor is short circuited.</i>	<i>Call for service</i>
<i>The display shows "HH" and compressor does not run</i>	<i>The ambient temperature is above 40°C/104°F</i>	<i>Stop using immediately</i>
<i>The display shows "LL" and compressor does not run</i>	<i>The ambient temperature is below -40°C/-40°F.</i>	<i>Stop using immediately</i>

If you continue to experience issues, contact Accucold's technical support department at **1-888-4-MEDLAB**.

# TECHNICAL INFORMATION

Model Numbers	Gross Capacity Cu. Ft.	Net Useable Interior Capacity Cu. Ft.
ARS1PV, ARG1PV, ARS1ML, ARG1ML, ARS1PV456, ARG1PV456	1.00	1.00
ARS3PV, ARG3PV, ARS3ML, ARG3ML, ARS3PV456, ARG3PV456	3.00	2.70
ARG31PVBIADA, ARG31MLBIADA, ARG31PVBIADA456	2.83	2.83
ARS32PVBIADA, ARS32MLBIADA, ARS32PVBIADA456,	2.83	2.83
ARS6PV, ARG6PV, ARS6ML, ARG6ML, ARS6PV456, ARG6PV456	6.00	4.40
ARG61PVBIADA, ARG61MLBIADA, ARG61PVBIADA456	6.00	4.40
ARS62PVBIADA, ARS62MLBIADA, ARS62PVBIADA456,	6.00	4.40
ARS8PV, ARG8PV, ARS8ML, ARG8ML, ARS8PV456, ARG8PV456	8.00	7.75
ARS12PV, ARG12PV, ARS12ML, ARG12ML, ARS12PV456, ARG12PV456	12.00	10.10
ARS15PV, ARG15PV, ARS15ML, ARG15ML, ARS15PV456, ARG15PV456	15.00	12.10
ARS18PV, ARG18PV, ARS18ML, ARG18ML, ARS18PV456, ARG18PV456	18.00	17.40

# LIMITED WARRANTY

## **TWO-YEAR LIMITED WARRANTY**

Within the 48 contiguous United States, for two years from the date of purchase, when this unit is operated and maintained according to instructions attached to or furnished with the product, warrantor will pay for factory-specified parts and repair labor to correct defects in materials or workmanship. Service must be provided by a designated service company. Outside the 48 states, all parts are warranted for two years from manufacturing defects. Plastic parts, shelves and cabinets are warranted to be manufactured to commercially acceptable standards and are not covered from damage during handling or breakage.

## **FIVE-YEAR COMPRESSOR WARRANTY**

1. The compressor is covered for five years.
2. Replacement does not include labor.

### ***ITEMS WARRANTOR WILL NOT PAY FOR:***

1. Service calls to correct the installation of your equipment, to instruct you how to use your equipment, to replace or repair fuses or to correct wiring or plumbing.
2. Service calls to repair or replace unit light bulbs or broken shelves. Consumable parts (such as filters) are excluded from warranty coverage.
3. Damage resulting from accident, alteration, misuse, abuse, fire, flood, acts of God, improper installation, installation not in accordance with electrical or plumbing codes, or use of products not approved by warrantor.
4. Replacement parts or repair labor costs for units operated outside the United States.
5. Repairs to parts or systems resulting from unauthorized modifications made to the unit.
6. The removal and reinstallation of your unit if it is installed in an inaccessible location or is not installed in accordance with published installation instructions.

## **DISCLAIMER OF IMPLIED WARRANTIES; LIMITATION OF REMEDIES**

CUSTOMER'S SOLE AND EXCLUSIVE REMEDY UNDER THIS LIMITED WARRANTY SHALL BE PRODUCT REPAIR AS PROVIDED HEREIN. IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO ONE YEAR. WARRANTOR SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR LIMITATIONS ON THE DURATION OF IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS, SO THESE EXCLUSIONS OR LIMITATIONS MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS, WHICH VARY FROM STATE TO STATE.

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