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REVCO

Chest and Upright Freezers

Legaci™ Refrigeration System

Installation and Operation Manual

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1 About Legaci™

All of the Revco ultra-low temperature freezers described in this manual feature the Legaci™ refrigeration system, a combination of advanced technologies designed specifically to provide optimal reliability in low-temperature applications.

Legaci systems include:

- Copeland compressors custom-designed for Revco to minimize bearing wear and operate efficiently under heavy work loads
- Dupont Suva® refrigerants selected to provide maximum cooling capacity under low-temperature conditions
- Revco's field-proven cascade refrigeration system design.

All upright models include a pressure equalization port to combat the vacuum created after door openings.

2 Safety Precautions

In this manual and on labels attached to this product, the words WARNING and CAUTION mean the following:

- WARNING: a potentially hazardous situation which, if not avoided, could result in serious injury or death.
- CAUTION: a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or damage to the equipment.

Before installing, using or maintaining this product, please be sure to read this manual and product warning labels carefully. Failure to follow these instructions may cause this product to malfunction, which could result in injury or damage.

Below are important safety precautions that apply to this product:

- Use this product only in the way described in the product literature and in this manual. Before using it, verify that this product is suitable for its intended use.
- Do not modify system components, especially the controller. Use OEM exact replacement equipment or parts. Before use, confirm that the product has not been altered in any way.
- Your unit must be properly grounded in conformity with national and local electrical codes. Never connect the unit to overloaded power sources.
- Disconnect the unit from all power sources before cleaning, troubleshooting, or performing other maintenance on the product or its controls.

3 General Recommendations

The refrigeration system is designed to maintain ultra-low temperatures with safety in a +32°C (90°F) ambient environment, **only** when the freezer is used for storage.

WARNING! This unit is not a "rapid-freeze" device. Freezing large quantities of liquid, or high-water content items, will temporarily increase the chamber temperature and will cause the compressors to operate for a prolonged time period. Attempting to utilize this freezer improperly may jeopardize safety or cause undue stress or damage to the refrigeration compressors.

Avoid opening the door for extended time periods since chamber temperature air will escape rapidly. Room air, which is higher in humidity, replacing chamber air may cause frost to develop in the chamber more rapidly.

After reading and completing the Safety Considerations, Pre-Installation, Installation, and Operation sections of this manual, turn the Key Switch to the POWER ON position.

3.1 Initial Loading

When loading the unit with "pre-frozen" materials, the operating temperature setpoint of the freezer should be set no lower than the temperature of the "pre-frozen" material. Allow the unit to operate at the setpoint for eight hours. The setpoint may then be lowered in increments no greater than 10°C. Allow a stabilizing period of eight hours for each ten degree adjustment, until the desired setpoint is achieved.

CAUTION! Failure to follow these procedures or overloading the unit may cause undue stress on the compressors or jeopardize user product safety.

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4 Pre-Installation

4.1 Unpacking

At delivery, examine the exterior for physical damage while the carrier's representative is present. If exterior damage is present, carefully unpack and inspect the unit and all accessories for damage.

If there is no exterior damage, unpack and inspect the equipment within five days of delivery. If you find any damage, keep the packing materials and immediately report the damage to the carrier. **Do not return goods to Revco without written authorization.** ***When submitting a claim for shipping damage, request that the carrier inspect the shipping container and equipment.***

CAUTION! **Do not discard the sublids from chest-style units.** The sublids are necessary to maintain correct temperature, moisture control, and economy of operation. Upright models do not include sublids as they utilize built-in metal inner doors.

5 Installation

Do not exceed the electrical and temperature ratings printed on the dataplate located on the lower left side of the unit.

CAUTION! Improper operation of the equipment could result in dangerous conditions. To preclude hazard and minimize risk, follow all instructions and operate within the design limits noted on the dataplate.

5.1 Location

Install the unit in a level area free from vibration with a minimum of six inches of space on the sides, rear, and top. Refer to Section 5.3 for further instructions on leveling cabinets. Allow enough clearance so that door or lid can swing open at least 90 degrees.

Do not position the equipment in direct sunlight or near heating diffusers, radiators, or other sources of heat. The ambient temperature range at the location must be 59 to 90°F (15 to 32°C).

CAUTION! To allow for proper air flow, a minimum of six inches of clearance space is required behind the freezer.

5.2 Wiring

CAUTION! Connect the equipment to the correct power source. Incorrect voltage can result in severe damage to the equipment.

CAUTION! For personal safety and trouble-free operation, this unit must be properly grounded before it is used. Failure to ground the equipment may cause personal injury or damage to the equipment. Always conform to the National Electrical Code and local codes. Do not connect the unit to overloaded power lines.

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Your freezer is equipped with one of five NEMA style plugs (refer to Figure 1). These plugs meet UL requirements.

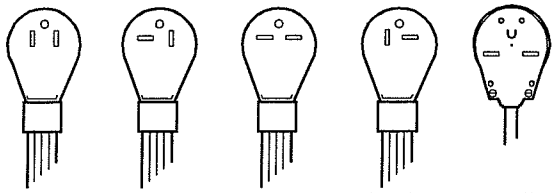


Figure 1. NEMA Style Plugs

Always connect the freezer to a dedicated (separate) circuit. Each freezer is equipped with a service cord and plug designed to connect it to a power outlet which delivers the correct voltage. Supply voltage must be within +10%, -5% of the freezer rated voltage.

If you have known voltage stability problems which are outside the limits of the freezer rated voltage, we recommended that the freezer be equipped with a Voltage Safeguard. Order the Voltage Safeguard from Revco (refer to Section 11.1.3 on page 13 for ordering information).

Note: *Revco Ultima 700 and 900 Series freezers are equipped with a standard built-in Voltage Safeguard circuit to detect and adjust low line voltage.*

CAUTION! Never cut the grounding prong from the service cord plug. If the prong is removed, the warranty is invalidated.

5.3 Leveling

The unit must be level both front to back and side to side.

To level chest models, leave the casters in place and shim the low wheel(s) with strips of sheet metal cut at least 1/2 in. wider than the caster.

Upright models have adjustable leveling feet which are located adjacent to the front casters.

5.4 Door Operation (Upright Models)

Revco upright freezer models are equipped with a special handle cam assembly which provides ease in opening and closing operations.

5.4.1 Locking the Door

1. Close the freezer door and place the handle in a vertical position.
2. Insert the key into the lock.
3. Turn the key clockwise 90 degrees.
4. Push the key into the door handle as far as it will go and turn it counterclockwise back to the starting position. The lock assembly should remain depressed inside the handle.
5. Remove the key.

5.4.2 Unlocking the Door

1. Insert the key into the lock.
2. Turn the key 90 degrees clockwise. The lock assembly automatically springs out until its face is outside the outer handle casting.
3. Turn the key back (counterclockwise 90 degrees) and remove the key.

5.4.3 Opening the Door

1. The door must be unlocked.
2. Pull the door latch handle toward you, rotating it 90 degrees until the handle rests on the built-in stop.
3. Use the long vertical door handle to pull the freezer door fully open.

5.5 Pressure Equalization Port

When an upright ultra-low temperature freezer door is opened, room temperature air rushes into the storage compartment. When the door is closed, the fixed volume of air is cooled rapidly. Pressure drops below atmospheric pressure, resulting in a substantial vacuum. Re-entry into the cabinet is impossible until internal pressures are returned to atmospheric pressure. Without a pressure equalization mechanism, it can take several minutes before the door can easily be reopened.

All upright models feature a port that provides vacuum relief after door openings.

The pressure equalization port is located in the bottom front center of the storage chamber. Although the port is designed to self-defrost, excessive frost accumulation in the bottom of the chamber could eventually restrict air flow. Therefore you should periodically inspect the port and brush away any loose frost using a stiff nylon brush.

WARNING! Because the defrost heater for the pressure equalization port operates continuously, the surfaces near the port can get hot if the unit is plugged in but the freezer is not in use. You can avoid this by unplugging the freezer when it is not being used for cold storage.

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6 Operation (Ultima II-9 and Elite-5 Freezers)

6.1 Control Panel Features

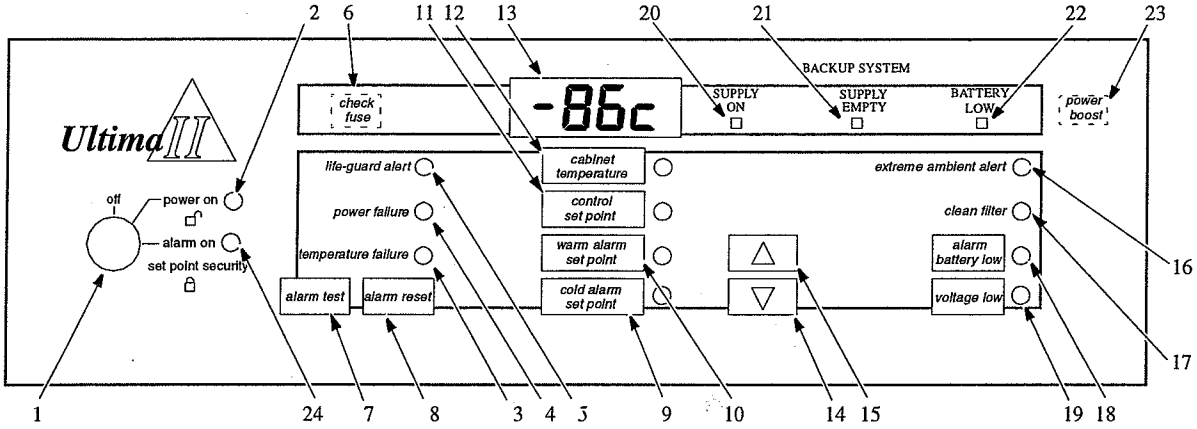


Figure 2. Ultima II 900 Series Control Panel with Optional Backup System

Before the initial start up, take some time to become familiar with the controls on your freezer. Figure 2 illustrates the Revco Ultima II Chest and Upright Freezer control panel.

Note: *Figure 2 shows all possible functions. These functions vary depending on the model and options. You may not have all of the functions on your equipment. Elite models do not include the Check Fuse indicator light (6) or the Power Boost light (23) as these models do not come standard with these options. Likewise,* ***only*** *Ultima II models will include the Set Point Security feature (24), Life-Guard Alert indicator light (5), and the Extreme Ambient Alert indicator light (16). The CO_2 or LN_2 Backup System lights (20, 21, 22) represent status indicators for a built-in CO_2 or LN_2 backup system, which is optional on Ultima II, Ultima or Elite models.*

1. Three position keyed Power On Switch.
2. Power On Indicator. This indicator lights when power is connected to the freezer.
3. Temperature Failure Indicator. This indicator lights when the freezer temperature deviates either above or below the alarm temperature settings.
4. Power Failure Indicator. This indicator lights when there is a power failure to the freezer (refer to Section 9 on page 11).
5. Life-Guard Alert Indicator (Ultima II Models only.) This indicator lights when the first stage compressor has gone into a cautionary state of operation to help prevent failure.
6. Check Fuse Light (Ultima II and Ultima Models only). This indicator lights when the surge protector on the main electronic panel is blown by a power surge (refer to Section 9 on page 11).
7. Alarm Test Pad. Press this pad to start an alarm test (refer to Section 5.2.5 on page 6).
8. Alarm Reset Pad. Press this pad to reset *slowly* blinking indicators. Slowly blinking indicators denote that the condition *has* occurred but is now within the given operating parameters. This pad is also depressed to temporarily silence the audible alarm (refer to Section 5.2.4 on page 5).
9. Cold Alarm Setpoint. Press this pad to set the cold alarm (refer to Section 6.2.3 on page 5).
10. Warm Alarm Setpoint. Press this pad to set the warm alarm (refer to Section 6.2.3 on page 5).
11. Control Setpoint. Press this pad to set the cabinet temperature (refer to Section 6.2.2 on page 5).
12. Cabinet Temperature Indicator. This indicator lights when the temperature display window is showing the cabinet temperature (refer to Section 6.2.1 on page 5).
13. Digital Temperature Display Window. This window displays chamber temperature, alarm values, etc. depending on the operating status of the freezer and the procedure being performed.
14. Decrement Pad (▽). Use this pad to decrease temperature values.
15. Increment Pad (△). Use this pad to increase temperature values.
16. Extreme Ambient Alert (Ultima II Models only). This indicator lights when the ambient temperature has exceeded the upper limit of the recommended operating range. If the Extreme Ambient Alert is activated, the ambient environment needs to be improved for proper function of the freezer.
17. Clean Filter Indicator. This indicator lights when the air cooled condenser filter is dirty (refer to Section 9 on page 11).
18. Alarm Battery Low Indicator. This indicator lights when the charge on the alarm battery is low. Press this button to display the percent of full battery charge in the digital display window.
19. Voltage Low Indicator. This indicator lights when incoming line voltage to the freezer is low. Press this pad to display the current line voltage in the digital display window.
23. Power Boost Indicator (Ultima II and Ultima Models only). This indicator lights when the Voltage Safeguard is active (refer to Section 9 on page 11).

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24. Alarm On/Set Point Security Indicator. This indicator lights when the alarm is activated.Also indicates that Setpoint Security is activated (Ultima II Models only).

The following indicators are available only when the freezer is equipped with the optional backup system (refer to Section 6.3.4 on page 7).

20. Backup System Supply On Indicator.
21. Backup System Empty Indicator
22. Backup System Battery Low Indicator.

6.2 Start Up

Refer to Section 6.1 and Figure 2 on page 4 as you complete the following procedures.

6.2.1 Turning the Power On

To start up the Ultima 900, Ultima 700 and Elite 500 Series Freezers, complete the following steps:

1. Plug the freezer into the power outlet (refer to Section 4.2 on page 2).
2. Turn the key switch to the POWER ON position. The Power On LED and the Cabinet Temperature LED illuminate.

Note: *The alarm function is not active at this time. Refer to Section 5.2.3 for information about setting the alarms. In addition, for Ultima II units only, the Setpoint Security will be deactivated in this key position.*

6.2.2 Setting the Cabinet Temperature

To set the cabinet temperature, complete the following steps:

1. For Ultima II units, press and hold the Control Setpoint pad.
2. The Control setpoint LED lights and the Cabinet Temperature LED goes out.
3. Press and hold △ to increase the temperature or ▽ to decrease the temperature. The digital display scrolls through temperature settings.
4. Release both pads when the digital temperature display window shows the correct setpoint value.

Note: *If no keys are pressed within ten seconds, the temperature display reverts to the cabinet temperature.*

6.2.3 Setting the Alarms

To set the cold alarm, complete the following steps:

1. For Ultima II units only, confirm that the key switch is at the Power On position (Setpoint Security disabled)
2. Press and hold the Cold Alarm Setpoint pad. The LED next to this pad lights. The temperature display shows the Cold Alarm value.
3. Press and hold △ or ▽ to adjust the Cold Alarm Setpoint.
4. Release both pads when the digital temperature display window shows the correct setpoint value.

To set the warm alarm, complete the following steps:

1. For Ultima II units only, confirm that the key switch is at the Power On position (Setpoint Security disabled).
2. Press and hold the Warm Alarm Setpoint pad. The LED next to this pad lights. The temperature display shows the Warm Alarm value.
3. Press and hold △ or ▽ to adjust the Warm Alarm Setpoint.
4. Release both pads when the digital temperature display window shows the correct setpoint value.

When the cabinet temperature drops below the Warm Alarm setting, turn the key switch to ALARM ON. The freezer is ready to operate.

Note: *If a power failure lasting over 30 seconds occurs, the POWER ON light goes out and the POWER FAILURE light and digital temperature display flash simultaneously.*

WARNING! You must turn the three-position key switch to the ALARM ON/SETPOINT SECURITY position to activate the alarm and place it in security operation.

6.2.4 Alarm Reset & Status Lights (Ultima II, Ultima and Elite Freezers)

The alarm reset feature ensures user acknowledgment of the occurrence of certain alarm conditions. This provides greater monitoring power by alerting the user if an alarm condition has occurred during periods when the freezer must be left unattended. The alarm conditions incorporating this feature are:

- Temperature Failure-Warm Alarm
- Temperature Failure-Cold Alarm
- Voltage Low
- Power Failure
- Life-Guard Alert (Ultima II only)
- Extreme Ambient Alert (Ultima II only)

During any of these alarm conditions, the corresponding indicator will flash quickly, approximately 90 times per minute. If the alarm condition then disappears, the flash rate will decrease to approximately 15 times per minute. The indicator will then remain flashing at this rate, unless the condition reoccurs, until the Alarm Reset button is pressed. Once this has occurred, the indicator will no longer be lit.

In the case of TEMPERATURE FAILURE-WARM ALARM and TEMPERATURE FAILURE-COLD ALARM, if these conditions have occurred but are now within the given limits, the two indicators will alternately flash (180° out of phase). In addition, for these two temperatures failures, the highest temperature and lowest temperature, respectively, during the error condition will be saved. Prior to the temperature failure being reset, the temperature extreme may be viewed by pressing the Cabinet Temperature pad in conjunction with either the Warm Alarm Setpoint pad or the Cold Alarm Setpoint pad.

Note: *Once the Alarm Reset button is depressed, the extreme temperature value is reset to the current cabinet temperature.*

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6.2.5 Alarm Test (Ultima II and Elite Freezers)

To test the cold and warm alarms, complete the following steps:

1. Press and hold the Alarm Test pad. The digital temperature display indicates rising temperature. When the temperature reaches the warm alarm value, the alarm sounds.

Note: *The temperature of the refrigerated space does not change during this procedure. Only the sensor is heated.*

2. Release the Alarm Test pad, the sensor and display return to cabinet temperature in a few minutes.

You can press the Audio Silence pad to silence the alarm but the alarm will ring back in five to seven minutes. You can silence the alarm in this manner as many times as necessary until the sensor cools below the warm alarm temperature. The alarm quits automatically when the sensor cools below the warm alarm value.

Note: *There is a limit on the alarm test feature. The alarm test will not commence if the warm alarm setpoint is more than 15 degrees warmer than the operating temperature setpoint.*

6.3 Backup System (Optional)

When you purchase a built-in CO_2 or LN_2 optional backup system for the freezer, the backup system control panel is located behind a hinged panel adjacent to the grill (refer to Figure 3).

Note: *Always purchase the cylinders which are equipped with siphon tubes for withdrawing liquid from the bottom of the cylinder. CO_2 cylinders must be kept at room temperature to function properly. LN_2 bottles are functional at any reasonable temperature.*

Use this panel to set the backup initiation temperature, usually 10 to 15°C warmer than the operating setpoint.

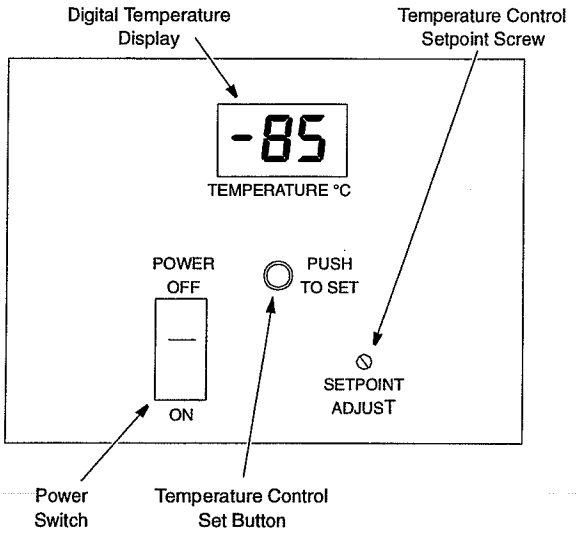


Figure 3. Control Panel for Optional Built-In Backup System

Note: *Value Series units use free-standing, field installed Backup Systems.*

6.3.1 CO_2 and LN_2 Precautions

The following are precautions for using liquid CO_2 and LN_2 backup systems.

WARNING! If a CO_2 or LN_2 cylinder falls and a valve is knocked off, the cylinder becomes a deadly and completely unguided missile. Transport the cylinders in a handtruck or cart with secure chain ties for the cylinder. After cylinders are connected to the equipment, securely attach them with chains to a solid, stationary object such as a building column.

WARNING! CO_2 and LN_2 liquids are non-poisonous but are very cold and will burn unprotected skin. Always wear protective eyewear and clothing when changing cylinders or working on the piping systems attached to an active source of liquid refrigerant.

WARNING! The gases produced by evaporation of CO_2 or LN_2 are non-poisonous but displace the oxygen in a confined space and can cause asphyxiation. **Do not store the cylinders in subsurface or enclosed areas.**

CAUTION! When closing the cylinder valve, make sure that the injection solenoid is energized to allow all the liquid to bleed off instead of being trapped in the supply tubing. Failure to do this results in activation of the pressure relief device, which could damage the freezer and requires replacing if it is activated.

CAUTION! For chest and upright models ordered with factory installed built-in backup systems, the flow of liquid CO_2 or LN_2 will be discontinued if the door or lid is opened during operation of the backup system. For units operated with free-standing, field installed type backup system, the flow of liquid CO_2 or LN_2 will be discontinued upon door or lid opening **only** if the switch provided with the free-standing package is installed on the freezer.

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6.3.2 Installation

Field installed systems are supplied with complete installation and operating instructions. If your system is factory installed, the freezer is shipped with a coiled length of tubing to connect the freezer to the bottles:

- 3/8 in. OD copper tubing for connection to the CO_2 supply.
- 5/8 in. OD copper tubing covered with Armaflex™ insulating tubing for connection to the LN_2 supply.

Straighten the coiled tubing and connect one end to the labeled connection on the freezer and the other end to the supply bottle or building supply fitting.

6.3.3 Operation

To activate the optional backup system, complete the following steps:

1. Push the Power Switch to the ON position. The digital temperature display window shows the current cabinet temperature.
2. Press and hold the Push to Set button to display the setpoint temperature in the digital temperature display window.
3. Use a small screwdriver to rotate the Setpoint Adjust screw until the correct backup operating temperature shows in the display window. The recommended setpoint is 10 to 15°C above normal cabinet temperature.

Note: *The temperature shown in the display window is accurate to ±1°C.*

The backup system can run for about 80 hours on battery power.

WARNING! You must push the Power Switch to the ON position in order to activate the backup system.

6.3.4 System Status Lights

In addition to the backup control system, the built-in backup system includes main control panel system status lights. These lights are only available when the backup system is installed.

- The Supply On Indicator lights when the backup system is operating on battery power.
- The Backup System Battery Low Indicator lights when the backup system battery charge is low. The built-in battery charger recharges the battery to full charge when power is restored to the system.

Note: *Since rechargeable batteries degrade over time, the battery should be replaced after approximately three years.*

- The Backup System Empty Indicator lights when the standby CO_2 or LN_2 bottle is empty.

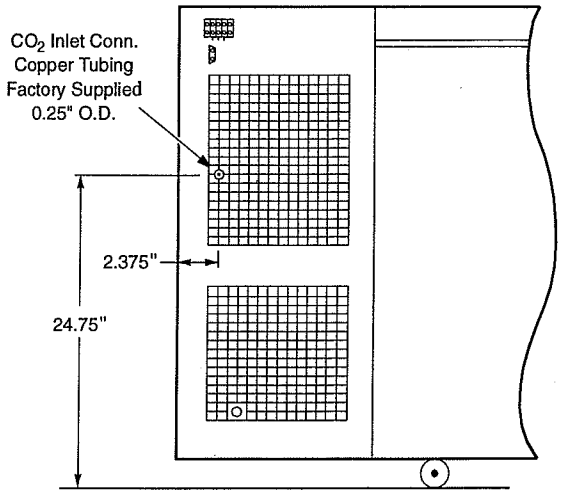


Figure 4. Location of CO_2 Connection Site, Chest Models Only

Table 1. Backup System Flow Rates – Cryogenic Freezers

		Lbs/hr @ 75°F Ambient Temperature (Flow Rate)			
Center Air Temperature		-150°C	-140°C	-130°C	-120°C
Liquid LN_2					
Chest Freezers					
5 ft^3	Empty	11.0	9.5	8.4	7.3
	1/2 Full	9.3	8.0	7.0	6.1
	Full	6.5	5.9	5.1	4.5
7 ft^3	Empty	11.3	10.0	9.0	8.0
	1/2 Full	9.7	8.6	7.6	6.8
	Full	7.8	6.8	6.0	5.2
10 ft^3	Empty	15.2	13.5	11.9	10.3
	1/2 Full	12.0	10.4	9.4	8.3
	Full	8.9	7.8	7.0	6.1

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Table 2. Backup System Flow Rates

Center Air Temperature		Lbs/hr @ 75°F Ambient Temperature (Flow Rate) -50°C	-60°C	-70°C
Liquid CO_2				
Chest Freezers				
3 ft^3	Empty	2.83	2.96	3.1
	1/2 Full	2.4	2.7	3.1
	Full	1.8	2.1	2.4
7 ft^3	Empty	4.1	4.7	5.5
	1/2 Full	3.5	4.0	4.6
	Full	2.6	3.0	3.5
10 ft^3	Empty	4.9	5.6	6.6
	1/2 Full	4.2	4.8	5.5
	Full	3.1	3.6	4.1
14 ft^3	Empty	5.6	6.5	7.5
	1/2 Full	4.8	5.5	6.3
	Full	3.5	4.2	4.8
17 ft^3	Empty	6.5	7.5	8.7
	1/2 Full	5.5	6.3	7.3
	Full	4.1	4.8	5.5
20 ft^3	Empty	7.3	8.4	9.8
	1/2 Full	6.2	7.1	8.2
	Full	4.6	5.4	6.2
Upright Freezers				
13 ft^3	Empty	7.4	8.5	9.7
	1/2 Full	6.5	7.4	8.3
	Full	5.1	5.9	6.7
17 ft^3	Empty	8.3	9.5	10.9
	1/2 Full	7.3	8.3	9.3
	Full	5.8	6.6	7.5
21 ft^3	Empty	8.9	10.2	11.7
	1/2 Full	7.8	8.9	10.0
	Full	6.2	7.1	8.1
25 ft^3	Empty	9.5	10.9	12.5
	1/2 Full	8.3	9.5	10.7
	Full	6.6	7.6	8.7

Center Air Temperature		Lbs/hr @ 75°F Ambient Temperature (Flow Rate) -60°C	-70°C	-80°C
Liquid LN_2				
Chest Freezers				
3 ft^3	Empty	2.7	3.1	3.5
	1/2 Full	2.2	2.6	2.9
	Full	1.7	1.9	2.2
7 ft^3	Empty	3.9	4.5	4.1
	1/2 Full	3.3	3.8	4.3
	Full	2.5	2.8	3.2
10 ft^3	Empty	4.7	5.4	6.1
	1/2 Full	4.0	4.5	5.1
	Full	3.0	3.4	3.8
14 ft^3	Empty	5.4	6.2	7.0
	1/2 Full	4.5	5.2	5.9
	Full	3.4	3.9	4.4
17 ft^3	Empty	6.2	7.1	8.1
	1/2 Full	5.3	6.0	6.8
	Full	3.9	4.4	5.1
20 ft^3	Empty	7.0	8.0	9.1
	1/2 Full	5.9	6.7	7.6
	Full	4.4	5.0	5.7
Upright Freezers				
13 ft^3	Empty	7.0	7.9	8.9
	1/2 Full	6.1	6.8	7.6
	Full	4.8	5.4	6.1
17 ft^3	Empty	7.7	8.7	9.8
	1/2 Full	6.7	7.5	8.4
	Full	5.3	5.9	6.7
21 ft^3	Empty	8.4	9.5	10.7
	1/2 Full	7.3	8.2	9.2
	Full	5.8	6.5	7.3
25 ft^3	Empty	9.1	10.3	11.6
	1/2 Full	7.9	8.9	10.0
	Full	6.3	7.1	7.9

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7 Operation (Value Freezers)

7.1 Control Panel Features

Before the initial start up, take some time to become familiar with the controls on your freezer. Figure 5 illustrates the Revco Value (300 Series) Chest and Upright Freezer control panel.

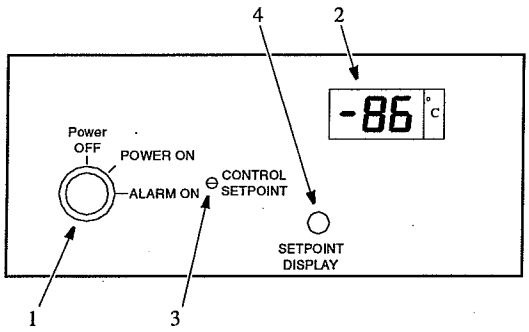


Figure 5. Value Series Control Panel (Shown with Optional Alarm)

1. Keyed Power On/Alarm On switch.
2. LED digital temperature display.
3. Recessed temperature control setpoint adjustment.
4. Temperature setpoint adjust button.

7.2 Start Up

Refer to Figure 5 as you complete the following procedures.

7.2.1 Turning the Power On

To start up the 300 Series Freezers, complete the following steps:

1. Plug the freezer into the power outlet (refer to Section 5.2 on page 2).
2. Turn the key switch to the POWER ON position. The digital temperature display shows the cabinet temperature.

Note: *The alarm function is not active at this time.*

7.2.2 Setting the Cabinet Temperature

To set the cabinet temperature, complete the following steps:

1. Insert a small screwdriver into the slotted screw labeled Control Setpoint and simultaneously press and hold the Setpoint Display button. The temperature display changes to read the existing setpoint value.
2. Turn the setpoint screw (clockwise for a colder setting and counterclockwise for a warmer setting) until the desired setpoint shows in the digital temperature display.
3. Release the Setpoint Display button. The digital temperature display returns to the cabinet temperature.

7.2.3 Optional Alarm

The optional Value 300 Series Alarm is operated by the freezer electronic control system. The alarm is preset at the factory with a cold setpoint:

- For units designed to operate at -75°C and -85°C, the alarm setpoint is approximately 90% of the freezer temperature setpoint. For example, if the freezer setpoint is -80°C, the alarm setpoint is -72°C.
- For units designed to operate at -50°C and warmer, the alarm setpoint is 80% of the freezer temperature setpoint. For example, if the freezer setpoint is -45°C, the alarm setpoint is -36°C.

To activate the alarm, wait until the freezer reaches operating temperature and turn the key switch to the ALARM ON position.

WARNING! You must turn the three-position key switch to the ALARM ON position to activate the alarm and place it in operation.

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8 Operation (Countertop Freezers)

8.1 Control Panel Features

Before the initial start up, take some time to become familiar with the controls on your freezer. Figure 6 illustrates the control panel for the Revco -40°C and -85°C countertop freezers.

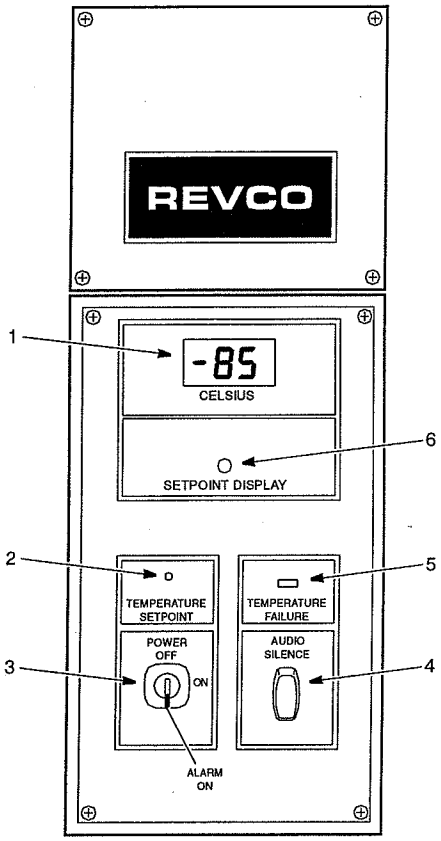


Figure 6. Countertop Freezer Control Panel

1. LED digital temperature display.
2. Recessed temperature control setpoint adjustment.
3. Power On/Alarm On switch.
4. Audio Silence switch.
5. Temperature Failure LED indicator.
6. Setpoint Display button.

8.2 Start Up

Refer to Figure 6 as you complete the following procedures.

8.2.1 Turning the Power On

To start up the Countertop Freezers, complete the following steps:

1. Plug the freezer into the power outlet (refer to Section 5.2 on page 2).
2. Turn the key switch to the POWER ON position. The digital temperature display shows the cabinet temperature.

Note: *The alarm function is not active at this time.*

8.2.2 Setting the Cabinet Temperature

To set the cabinet temperature, complete the following steps:

1. Insert a small screwdriver into the slotted screw labeled Temperature Setpoint and simultaneously press and hold the Setpoint Display button. The temperature display changes to read the existing setpoint value.
2. Turn the setpoint screw (clockwise for a colder setting and counterclockwise for a warmer setting) until the desired setpoint shows in the digital temperature display.
3. Release the Setpoint Display button. The digital temperature display returns to the cabinet temperature.

8.2.3 Warm Alarm

The alarm is preset at the factory:

- For units designed to operate at -85°C, the alarm setpoint is 90% of the freezer temperature setpoint.
- For units designed to operate at -40°C and warmer, the alarm setpoint is 80% of the freezer temperature setpoint.

To activate the alarm, wait until the freezer reaches operating temperature and turn the key switch to the ALARM ON position.

If the cabinet temperature rises above the alarm setpoint, the Temperature Failure light illuminates and the audio alarm sounds.

To silence the audio alarm, press the Audio Silence button. The alarm stops for 15 minutes and then sounds again until the cabinet temperature drops below the alarm setpoint or until the Alarm Silence button is pressed again.

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9 Maintenance and Troubleshooting

WARNING! Unauthorized repair of your Revco freezer will invalidate your warranty. Contact Revco Technical Service at 1-800-438-4851 for additional information.

CAUTION! Maintenance should only be performed by trained personnel.

9.1 Condenser Maintenance

9.1.1 Cleaning the Condenser

Clean the condenser at least every six months; more often if the laboratory area is extremely dust prone.

To clean the condenser, complete the following steps:

1. Pull the grill open.
2. Remove the filter. Check the fans. If a fan is not operating, contact a Revco Authorized Service Company immediately.
3. Vacuum the condenser.
4. Replace the filter and close the grill.

9.1.2 Cleaning the Condenser Filter

Clean the condenser filter every two or three months.

1. Pull the grill open.
2. Remove the filter.
3. Shake the filter to remove loose dust, rinse the filter in clean water, shake the excess water from the filter, and replace the filter.
4. Close the grill.

Note: *Countertop models do not have filters.*

9.2 Gasket Maintenance

Periodically check the gaskets around the door or lid for punctures or tears. Leaks are indicated by a streak of frost which forms at the point of gasket failure. Make sure that the cabinet is level (refer to Section 5.3 on page 3 for leveling information).

Keep the lid and door gaskets clean and frost free by wiping gently with a soft cloth.

9.3 Defrost Procedures

To defrost the equipment, complete the following steps:

1. Remove all products and place in another cabinet.
2. Turn off the unit and allow the interior to warm to room temperature.
3. Dispose of the ice and wipe out any water standing in the bottom of the cabinet.

If there is freezer odor, wash the interior with a solution of baking soda and warm water. Clean the exterior with any common household cleaning wax.

9.4 Alarm Battery Maintenance

Have a technician check the condition of the alarm battery at least once a year.

To replace the alarm battery, complete the following steps:

1. Remove the front grill. The alarm battery is located directly behind the grill. The terminals are the "push on" type.

Note: *Countertop units require removal of the left side panel to access the battery.*

2. Grasp the terminal with pliers and work it gently back and forth while pulling it off. The fittings are tight.
3. Remove the battery and put the new battery in place.

Note: *You may have to cut a strip of silicone rubber in order to remove the battery.*

4. Connect the battery terminals and replace the front grill.

9.5 Frame Heater Switch (Cryogenic models only)

Cryogenic chest freezers (-140° and -150° C) have a frame heater switch which can be used to prevent or remove condensation near the freezer compartment door. The switch is located in back of the unit near the top center, to the right of the junction box. Turning the switch to the up position heats up the frame around the door.

Heating the frame has no effect on interior cabinet temperature. You can turn on the switch whenever there is condensation near the door.

9.6 Troubleshooting Procedures

WARNING! Troubleshooting procedures involve working with high voltages which can cause injury or death. Troubleshooting should only be performed by trained personnel.

Table 3. Troubleshooting Procedures

Problem	Solution
Check Fuse indicator is on.	Surge protector is blown. Call an Electronics Technician to check the equipment.
Power Boost indicator is on.	Incoming voltage is below factory specifications. Call an Electronics Technician to check the power supply.
Clean Filter indicator is on.	Condenser filter is dirty. Refer to Section 9.1.2.
Alarm Battery Low indicator is on.	Alarm battery is low on charge. Have a technician check the alarm battery. Refer to Section 9.4.
Voltage Low indicator is on.	Low incoming line voltage to the freezer. Call an Electronics Technician to check the power supply.

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10 Chart Recorders

Panel-mounted six-inch seven-day recorders are available as options for all freezer models.

10.1 Set Up and Operation

To prepare the recorder to function properly, complete the following steps:

1. Open the recorder door to access the recorder.
2. Connect the nine volt DC battery located at the recorder's upper right corner. This battery provides backup power.
3. Install clean chart paper (refer to Section 10.3 below).
4. Remove the plastic cap from the pen stylus and close the recorder door.

Recorder operation begins when the system is powered on.The recorder may not respond until the system reaches temperatures within the recorder's range.

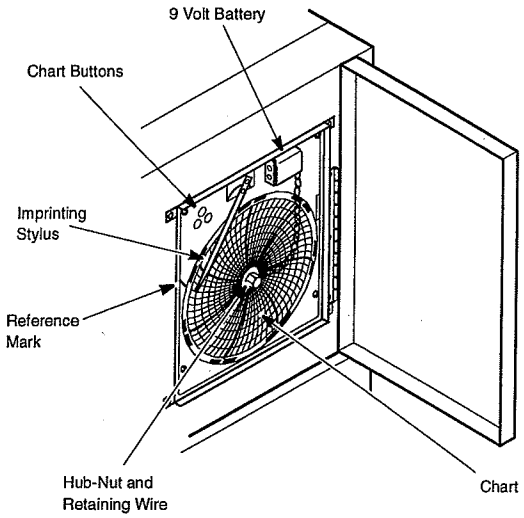


Figure 7. Chart Recorder

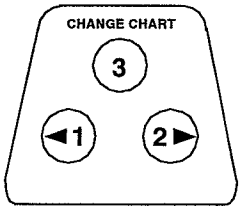


Figure 8. Chart Buttons

10.2 Power Supply

The recorder normally uses AC power when the system is operating. If AC power fails, the LED indicator flashes to alert you to a power failure. The recorder continues sensing cabinet temperature and the chart continues turning for approximately 24 hours with back-up power provided by the nine-volt battery.

The LED indicator glows continuously when main power is functioning and the battery is charged.

When the battery is low, the LED flashes to indicate that the battery needs to be changed.

10.3 Changing Chart Paper

To change the chart paper, complete the following steps:

1. Locate the pressure sensitive buttons at the front, upper left of the recorder panel.
2. Press and hold the Change Chart button (#3) for one second. The pen will move off the scale.
3. Unscrew the center nut, remove the old chart paper, and install new chart paper. Carefully align the day and time with the reference mark (a small groove on the left side of the recorder panel).
4. Replace the center nut and hand tighten. Press the Change Chart button again to resume temperature recording.

10.4 Calibration Adjustment

This recorder has been accurately calibrated at the factory and retains calibration even during power interruptions. If required, however, adjustments can be made as follows:

1. Run the unit continuously at the control setpoint temperature. Continue steady operation for at least two hours to provide adequate time for recorder response.
2. Measure cabinet center temperature with a calibrated temperature monitor.
3. Compare the recorder temperature to the measured cabinet temperature. If necessary, adjust recorder by pressing the left (#1) and right (#2) chart buttons.

Note: *The stylus does not begin to move until the button is held for five seconds.*

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11 Optional Equipment

In addition to the optional chart recorder, the following equipment is available for some freezer models. Refer to the Accessories section on page 13 for more information on these and other options, including inventory racks and storage boxes.

For additional information, contact your Revco dealer or Revco Customer sales at 1-800-252-7100.

11.1 Backup Protection Devices

Liquid Nitrogen and Liquid CO_2 systems are available to protect your product in case of a prolonged power failure. These systems are powered by a rechargeable battery with a built-in automatic charger. Refer to Section 6.3.4 on page 7 for additional information.

Note: *These systems are not available for countertop models.*

11.1.1 Liquid Nitrogen (LN_2)

This system uses portable and locally refillable bottles. These containers keep the liquid at low temperature and pressure by continually venting a small amount of gaseous N_2. You must check the liquid level indicator daily to assure an adequate emergency supply.

11.1.2 Liquid CO_2

This system uses portable and locally refillable bottles that are not vented and have a virtually unlimited standby life unless they develop a leak. These containers hold liquid at room temperature and high pressure. Several bottles can be connected together, increasing the effective length of standby refrigeration.

11.1.3 Voltage Safeguard

This fully automatic device monitors the supply voltage and increases voltage if necessary so the freezer always operates within the factory recommended limits. Ultima II and Ultima models are factory equipped with this device.

CAUTION! The Voltage Safeguard unit does not allow you to operate a 115 volt product on 230 volts or vice versa. It is designed to provide 5 to 15% voltage correction, depending on the freezer model.

11.2 Remote Alarm

The remote alarm terminals on the back of the freezer are connected to freezer internal dry contacts. You can connect a remote alarm package with a separate 24 volt power supply.

12 Accessories

Note: *For accessories and options not described herein, or for special modifications, contact Revco Scientific.*

Inventory Rack Capacity Chart for Ultima, Elite, and Value Series

Rack Catalog No. (Rack Quantity) Box Size in.	Cubic Foot Capacity											
	1	3.1	4.5	6.8	10.3	13.7	17.1	20.5	13.4	17.2	20.2	24.4
For ULT Chest Freezers												
5972, Full Rack, (7) 2 in. boxes	—	9	12	—	—	—	—	—	—	—	—	—
5973, Full Rack, (5) 3 in. boxes	—	9	12	—	—	—	—	—	—	—	—	—
5978, Full Rack, (11) 2 in. boxes	—	—	—	12	18	24	30	36	—	—	—	—
6096, Full Rack, (8) 3 in. boxes	—	—	—	12	18	24	30	36	—	—	—	—
6230, Half Rack, (6) 2 in. boxes	—	—	—	24	36	48	60	72	—	—	—	—
6231, Half Rack, (4) 3 in. boxes	—	—	—	24	36	48	60	72	—	—	—	—
For ULT Countertop Freezers												
6232, (4) 2 in. boxes	4	—	—	—	—	—	—	—	—	—	—	—
6233, (3) 3 in. boxes	4	—	—	—	—	—	—	—	—	—	—	—
For ULT Upright Freezers												
6112-1, (12) 2 in. or (9) 3 in. boxes	—	—	—	—	—	—	—	—	20	—	—	—
6113-1, (16) 2 in. or (12) 3 in. boxes	—	—	—	—	—	—	—	—	—	20	25	30

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Inventory Component Description, Ultra-Low Temperature Freezers

Description	Catalog No.
For All Models	
Fiberboard boxes and grid dividers are packaged in lots of one dozen	
Fiberboard box, 5-1/4 in. square x 2 in. high, one dozen.	5954
Fiberboard box, 5-1/4 in. square x 3 in. high, one dozen.	5956
Grid divider, fiberboard, 100 cell, 7/16 in., holds 100 12 mm vials, one dozen.	5958
Grid divider, fiberboard, 49 cell, 5/8 in., holds 49 16 mm vials, one dozen.	5959
Grid divider, fiberboard, 64 cell, 9/16 in., holds 64 14 mm vials, one dozen.	5960
Grid divider, fiberboard, 81 cell, 1/2 in., holds 81 13 mm vials, one dozen.	6212
Stainless steel box, 5-1/4 in. square x 2 in. high, each.	5955
Stainless steel box, 5-1/4 in. square x 3 in. high, each.	5957
Stainless steel box cover, each.	5953
For Chest Models	
Single full rack, holds (7) 2 in. boxes, for 3.1 and 4.5 cu.ft chest models only.	5972
Single full rack, holds (5) 3 in. boxes, for 3.1 and 4.5 cu.ft chest models only.	5973
Single full rack, holds (11) 2 in. boxes, for all chest models except 3.1 and 4.5 cu.ft.	5978
Single full rack, holds (8) 3 in. boxes, for all chest models except 3.1 and 4.5 cu.ft.	6096
Single full rack, holds (8) plasma boxes, for 3 cu.ft chest model.	6097
Single full rack, holds (13) plasma boxes, for all chest models except 3.1 and 4.5 cu.ft.	6098
Single split rack, holds (6) 2 in. boxes, for all chest models except 3.1 and 4.5 cu.ft.	6230
Single split rack, holds (4) 3 in. boxes, for all chest models except 3.1 and 4.5 cu.ft.	6231
Basket/Rail Kit, for 6.8 cu.ft chest freezers.	6217
Basket/Rail Kit, for 10.3 cu.ft chest freezers.	6218
Basket/Rail Kit, for 13.7 cu.ft chest freezers.	6190
Basket/Rail Kit, for 17.1 cu.ft chest freezers.	6191
Basket/Rail Kit, for 20.5 cu.ft chest freezers.	6192
For Upright Models	
Adjustable single stack, holds (12) 2 in. or (9) 3 in. boxes, for 13.4 cu.ft upright models.	6112-1
Adjustable single stack, holds (16) 2 in. or (12) 3 in. boxes, for 17.2, 20.2, and 24.4 cu.ft upright models.	6113-1
Solid stainless steel shelf:	
for 13.4 cu.ft upright models only.	6667
for 17.2 cu.ft upright models only.	6668
for 20.2 cu.ft upright models only.	6669
for 24.4 cu.ft upright models only.	6670
For Countertop Models	
Single full rack, holds (4) 2 in. boxes, for 1 cu.ft countertop models only.	6232
Single full rack, holds (3) 3 in. boxes, for 1 cu.ft countertop models only.	6233

Inventory Components, Blood Bank Red Cell and Plasma Freezers

Description	Catalog No.
Plasma Rack, single, holds (13) plasma boxes, for all chest models.	6098
Plasma Rack, single, holds (12) plasma boxes, for 13.4 cu.ft upright models.	6110-1
Plasma Rack, single, holds (16) plasma boxes, for 17.2 and 20.2 cu.ft upright models.	6111-1
Red cell press.	6225

Blood Bank Freezer Inventory Capacity

Rack Catalog No. and Description[a]	Freezers Cu.ft/Total Capacity				
	Chest			Upright	
	6.8 Cu.ft	13.7 Cu.ft	20.5 Cu.ft	13.4 Cu.ft	20.2 Cu.ft
6225, Red Cell Press.	92	204	334	200	—
6098, Plasma Rack, 13 Box Capacity.	12	24	36	—	—
6110-1, Plasma Rack, 12 Box Capacity.	—	—	—	20	—
6111-1, Plasma Rack, 16 Box Capacity.	—	—	—	—	25

[a] Example: A 13.7 cu.ft plasma chest freezer holds 24 total Catalog No. 6098 Plasma Racks.

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Temperature Recorders

All six inch recorders utilize pressure-sensitive chart paper (1 box @ 50 charts included), no inking is required except Catalog No. 6183 which utilizes an inked pen. All four inch recorders utilize inked pens.

Description	Catalog No.
Temperature recorder, 6 in. circular chart, seven-day drive, panel mounted. Factory installed.	6171
Temperature recorder, 6 in. circular chart, seven-day drive, for -120°C, -140°C, and -150°C models only, panel mounted. Factory installed.	6183
Temperature recorder, 6 in. circular chart, seven-day drive, free-standing, for all ULT freezers -40°C to -90°C. Customer installed.	6170
Temperature recorder, 6 in. circular chart, seven-day drive, free-standing, for -120°C, -140°C, and -150°C models only. Customer installed.	6236

Chart Paper

Description	Catalog No.
Chart paper, package of 50, for 6 in., seven-day recorder, -115°C to +50°C.	6185
Chart paper, package of 50, 6 in., seven-day recorder, -150°C to +20°C.	6186

Special Voltages

Standard voltages are listed under *Voltage* in Specification Charts associated with each product category. Standard voltages are available at no charge; alternative voltages may be available at an extra charge. All voltages must be specified when ordering. Contact Revco for more information.

Electronic Backup Systems

CO_2 Backup System. Choose built-in or free-standing. Injects liquid CO_2 into cabinet when cabinet temperature warms to pre-set level. Automatic shut-off on door or lid opening. Adjustable CO_2 setpoint in 1°C increments to -75°C with digital display and actual cabinet temperature at the push of a button. Indicator lights when system is activated. System is powered by continually recharged battery. Includes all hardware except CO_2 cylinder.

Description	Catalog No.
CO_2 Backup, built-in, panel mounted, factory installed. Ultima and Elite only. Low battery indictor lights when battery needs replacing. Empty cylinder indicator lights when cylinder is exhausted.	6594
CO_2 Backup, free-standing, field installed. Specify freezer model number and voltage when ordering.	6593

LN_2 Backup System. Choose built-in or free-standing. Injects liquid nitrogen into cabinet when cabinet temperature warms to pre-set level. Automatic shut-off on door or lid opening. Adjustable LN_2 setpoint in 1°C increments to -150°C with digital display and actual cabinet temperature at the push of a button. Indicator lights when system is activated. System is powered by continually recharged battery. Includes all hardware except low-pressure liquid nitrogen cylinder.

Description	Catalog No.
LN_2 Backup, built-in, panel mounted, factory installed. Ultima and Elite only. Low battery indicator lights when battery needs replacing. Empty cylinder indicator lights when cylinder is exhausted.	6595
LN_2 Backup, free-standing, field installed. Specify freezer model number and voltage when ordering.	6214

Low Voltage Protection

Built-in voltage safeguards are standard on all Ultima models. Optional on all other models.

Voltage Safeguard. Helps protect electrical equipment from damage by boosting low voltage automatically. Panel light flashes to indicate when deficient line voltage is being corrected. Specify when ordering freezer. Standard on all Ultima II and Ultima models. Optional on all other models.

Description	Catalog No.
Built-in, factory installed, for Elite and Value -86°C to -40°C models only.	6240
Free-standing. Helps protect electrical equipment from damage by boosting low voltage automatically. Provided with terminal board for direct wiring. Field installed. Specify freezer model number and voltage when ordering. For Elite and Value only.	5575

Surge Protection

Surge Protector. Provides protection against external electrical spikes (temporary high voltage condition). Built-in surge protection is standard on Revco Ultima II and Ultima models; free-standing surge protection is optional on all other models.

Description	Catalog No.
Free-standing, for Elite and Value models only. Field installed by qualified electrician or factory authorized Revco service center. Specify freezer model number and voltage when ordering.	6402

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Alarm Systems

Battery Operated Alarm. Local audible alarm responds to temperature rise in freezer. System operates off continually recharged battery to maintain function in case of power failure. Alarm point automatically tracks control setpoint. Pre-set alarm is 80% of setpoint on -40°C and -50°C models and 90% of setpoint on -75°C and -86°C models (includes remote alarm contacts). For Value Series ultra-low freezer models only.

Description	Catalog No.
Factory installed, built-in. Must specify when ordering freezer.	6278
Field installed, specify freezer model and voltage when ordering.	6406

Remote Alarm/Monitoring

Description	Catalog No.
Standard Remote Alarm. Provides audible and visual signal in the event of temperature rise or power failure. Adaptable to telephone switchboard. Can be located up to 1/3 mile (1760 ft/536 m) from freezer. Must be used with factory installed electronic alarm system and connected to normally-open or normally-closed remote alarm contacts. Wire not included. Specify freezer model number and voltage when ordering.	5612
Deluxe Electronic Remote Alarm System. User programmable to sound alarm in the event of temperature rise or power failure. Can dial up to four telephone numbers to advise of alarm condition across any telephone system which accepts pulse dialing. One system can monitor up to four individual freezers or up to three groups of freezers. Contact Revco for detailed specifications.	6224

RS-232 Data Port and Software

Description	Catalog No.
For use with Elite models only. Monitors freezer setpoint, high and low limit setpoints and power supply. Advises of temperature deviation, voltage boost on, surge intercept, low alarm battery, and clean filter functions. Auto status report adjustable in increments of 5 seconds to 2 hours.	6405

Extended Warranty Options

Note: In addition to Revco's standard 13-Month full warranty on the complete product (USA and Canada), Revco can supply an additional four-year protection on compressor and compressor parts. This additional coverage must be purchased at the time of original product purchase.

Under this contract, Revco Scientific agrees to furnish a compressor FOB our factory to replace one which has been determined to be defective by Revco or a factory authorized Revco Service Agency.

Note: *Extended 4-Year Compressor Parts Warranties are standard on Ultima II and Ultima Series Freezers. These Extended Warranty Options apply to Elite and Value Series products only.*

Operating Temperature	Catalog No.
-40°C	6077
-50°C	
-75°C	6078
-86°C	
-120°C	6079
-140°C	6221
-150°C	

Description	Catalog No.
Extended 12-Month Comprehensive Coverage, for all models, provides additional 12-month warranty coverage, parts and labor. Contact Revco for details.	6613

Interior Options

Description	Catalog No.
Chest Freezer Interiors	
Stainless steel interior, 3.1 cu.ft chest.	6121
Stainless steel interior, 4.5 cu.ft chest.	6646
Stainless steel interior, 6.8 cu.ft chest.	6122
Stainless steel interior, 10.3 cu.ft chest.	6123
Stainless steel interior, 13.7 cu.ft chest.	6124
Stainless steel interior, 17.1 cu.ft chest.	6125
Stainless steel interior, 20.5 cu.ft chest.	6126
Upright Freezer Interiors	
Stainless steel interior, 13.4 cu.ft upright.	6179
Stainless steel interior, 17.2 cu.ft upright.	6180
Stainless steel interior, 20.2 cu.ft upright.	6181
Stainless steel interior, 24.4 cu.ft upright.	6645

Miscellaneous Ultra-Low Temperature Freezer Options

Description	Catalog No.
Additional freezer porthole, 1 in. diameter.	6105
Inside delivery (price quoted by region). Contact Revco if you have special delivery and/or installation requirements. Through the Revco network of factory authorized service centers, Revco can arrange testing prior to delivery and installation within your facility.	6095

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13 Warranty

13.1 Domestic Warranty
13 Months Full Warranty, Parts and Labor
United States of America and Canada

Revco Scientific, Inc. warrants this product to the owner for a period of thirteen (13) months from date of shipment by Revco Scientific, Inc. Under this warranty, Revco, through its authorized service organizations, will repair, or at its option, replace any part found to contain a manufacturing defect in material or workmanship without charge to the owner for parts, service labor, or any shipping or cartage costs. Replacement or repaired parts will be warranted for only the unexpired portion of the original warranty. Revco Ultima Series freezers compressors are covered for 4 years, parts only. This warranty is limited to products purchased and installed in the United States of America and Canada. It does not apply to damage caused by accident, misuse, fire, flood, or acts of God. It does not apply to damage caused from failure to properly install, operate, or maintain the product in accordance with the printed instructions provided.

To obtain prompt warranty service, simply contact the nearest authorized service center or dealer listed in the directory enclosed with each product. Revco's own shipping records showing date of shipment shall be conclusive in establishing the warranty period.

This warranty is in lieu of any other warranties, expressed or implied, including merchantability or fitness for a particular purpose. The owner agrees that Revco's sole liability with respect to defective parts shall be as set forth in this warranty, and any claims for incidental or consequential damages are expressly excluded.

13.2 International Warranty
16 Month Parts Warranty

Revco Scientific, Inc., warrants this product to the owner for a period of sixteen (16) months from the date of shipment by revco. If any part is found to contain a manufacturing defect in material or workmanship, Revco assumes no responsibility for any labor expenses for service, removal, or reinstallation required to replace part, or for incidental repairs, and such costs are the responsibility of the Owner unless a service labor agreement exists between the Owner and his Dealer.

The warranty does not apply to damage caused by accident, misuse, fire, flood, or acts of God, or to defects resulting from failure to properly install, operate, or maintain the product in accordance with the printed instructions provided.

To obtain prompt warranty service. simply contact the Dealer from whom you purchased the product or the nearest Dealer handling Revco products. Revco's own shipping records showing date of shipment shall be conclusive in establishing the warranty period.

This warranty is in lieu of any other warranties, expressed or implied, including merchantability or fitness for a particular purpose. The owner agrees that Revco's sole liability with respect to defective parts shall be as set forth in this warranty, and any claims for incidental or consequential damages are expressly excluded.

13.3 Extended Warranty Options

Optional warranty extensions are available by special order. Contact your Dealer for more information on 13 month compressor parts warranties and 12 month compressive parts and labor warranty extensions.

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Important

For your future reference and when contacting the factory, please have the following information readily available:

Model Number: _____

Serial Number: _____

Date Purchased: _____

The above information can be found on the dataplate attached to the equipment. If available, please provide the date purchased, the source of purchase (Revco or specific agent/rep organization), and purchase order number.

IF YOU NEED ASSISTANCE:

REVCO SALES DIVISION

Phone:	828/658-2711 800/252-7100
FAX:	828/645-3368

LABORATORY PARTS and SERVICE

Phone:	800/438-4851
FAX:	828/658-2576

TECHNICAL SUPPORT

Phone:	800/438-4851

REVCO

275 Aiken Road
Asheville, NC 28804
U.S.A.

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