



SINGLE/MULTI-DECK MERCHANDISER

INSTALLATION & OPERATIONS MANUAL

OB-SC (R-290)

PRODUCE

WARNING / FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

WARNING

R290 flammable refrigerant in use. Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

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To ensure proper functionality and optimum performance, it is **STRONGLY** recommended that Hillphoenix specialty cases be installed/serviced by qualified technicians who have experience working with commercial refrigerated display merchandisers and storage cabinets. For a list of Hillphoenix-authorized installation/service contractors, please visit our website at www.hillphoenix.com.

Hillphoenix®

A **DOVER™** COMPANY



Important

At Hillphoenix[®], the safety of our customers and employees, as well as the ongoing performance of our products, are top priorities. To that end, we include important warning messages in all Hillphoenix installation and operations handbooks, accompanied by an alert symbol paired with the word "DANGER", "WARNING", or "CAUTION".

All warning messages will inform you of the potential hazard; how to reduce the risk of case damage, personal injury or death; and what may happen if the instructions are not properly followed.

This manual must be stored near the display case where it can be easily consulted. If this manual does not provide the information you require please contact Hillphoenix for more information.



DANGER

Indicates an immediate threat of death or serious injury if all instructions are not followed carefully.



WARNING

Indicates a potential threat of death or serious injury if all instructions are not followed carefully.



CAUTION

Indicates that failure to properly follow instructions may result in case damage.

Revision History

- new manual format_09/20
- NSF Listing Update_12/20
- technical reference_02/21

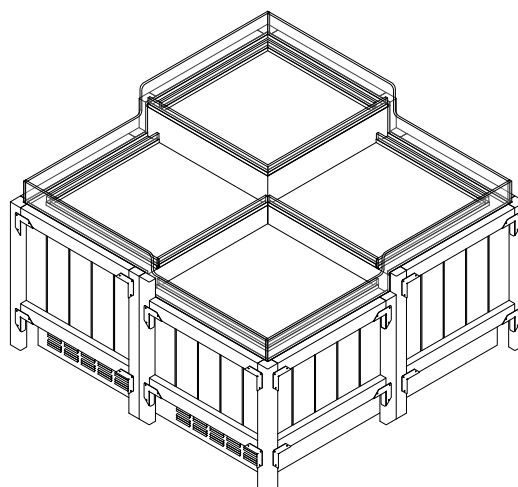
OB-SC

Self-Service Open Multi-Deck Tiered Bulk Produce Merchandiser
1, 2 & 4 Tier (Produce)



GENERAL NOTES:

- "----" Indicates that the feature is not an option on this case model and/or the data is not yet available at this time.



SHIPPING WEIGHT	
Case	Weight
OB-SC R290	----



ALL MEASUREMENTS ARE TAKEN PER ASHRAE-72-2005 SPECIFICATIONS. HILLPHOENIX REFRIGERATED DISPLAY CASES FOR SALE IN THE UNITED STATES MEET OR EXCEED DEPARTMENT OF ENERGY 2017 REQUIREMENTS.

OB-SC

Rev. Date	Rev. #	Rev. Title
02-10-21	3	DATA UPDATE
08-21-20	2	DATA UPDATE



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OB-SC

Self-Service Open Multi-Deck Tiered Bulk Produce Merchandiser
1, 2 & 4 Tier (Produce)



SYSTEM REQUIREMENTS

Case Length	Volts	Phase	Total Amps	Minimum Circuit Ampacity	Maximum Overcurrent Protection
1 Tier	120	1	6.06	6.66	11.99
2 Tier	120	1	9.20	10.46	18.83
4 Tier	120/208	1	9.23	11.33	19.73

ELECTRICAL DATA

Case Length	Fans Per Case	Volts	Fan Motor	
			Total Amps	Total Watts
1 Tier	1	120	0.3	25.0
2 Tier	1	120	0.3	25
4 Tier	2	120	0.6	50

GUIDELINES AND CONTROL SETTINGS

24hr Energy Usage (kWh/ft)	Suction Temperature @ Case Outlet (°F)	Superheat Set Point @ Bulb (°F)	Discharge Air (°F)	Discharge Air Velocity (FPM)
---	10 -15	Capillary Tube	28	150 -170

CONDENSING UNIT DATA

Case Length	Volts	Phase	BTU/hrs	RLA (Amps)	LRA (Amps)	Refrig.	Quantity	Grams
1 Tier	120	1	2957	5.33	32.01	R290	1	132
2 Tier	120	1	3876	8.37	40.23	R290	1	98
4 Tier	120	1	3876	8.37	40.23	R290	2	98

DEFROST CONTROLS

Defrosts Per Day	Run-Off Time (Min)	Electric Defrost		Timed-Off Defrost		Hot Gas Defrost	
		Fail-Safe (Min)	Termination Temp (°F)	Fail-Safe (Min)	Termination Temp (°F)	Fail-Safe (Min)	Termination Temp (°F)
6	---	---	---	45	45	---	---

NOTES:

- "----" Indicates that the feature is not an option on this case model and/or the data is not yet available at this time.
- Listed discharge air velocity represents the average velocity at the peak of defrost measured from front facing discharge wall vents to lower tier.
- RLA - Running Load Amps
- LRA - Locked Rotor Amps



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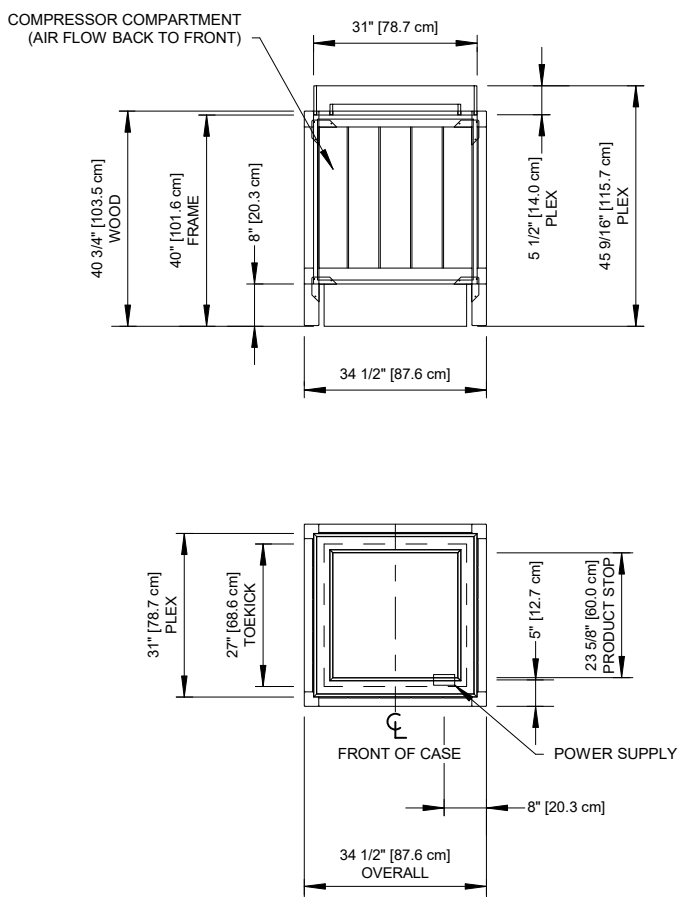
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02-10-21	3	DATA UPDATE
08-21-20	2	DATA UPDATE



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OB-SC

Self-Service Open Multi-Deck Tiered Bulk Produce Merchandiser
1, 2 & 4 Tier (Produce)



NOTES:

- Shown with optional wood cladding.



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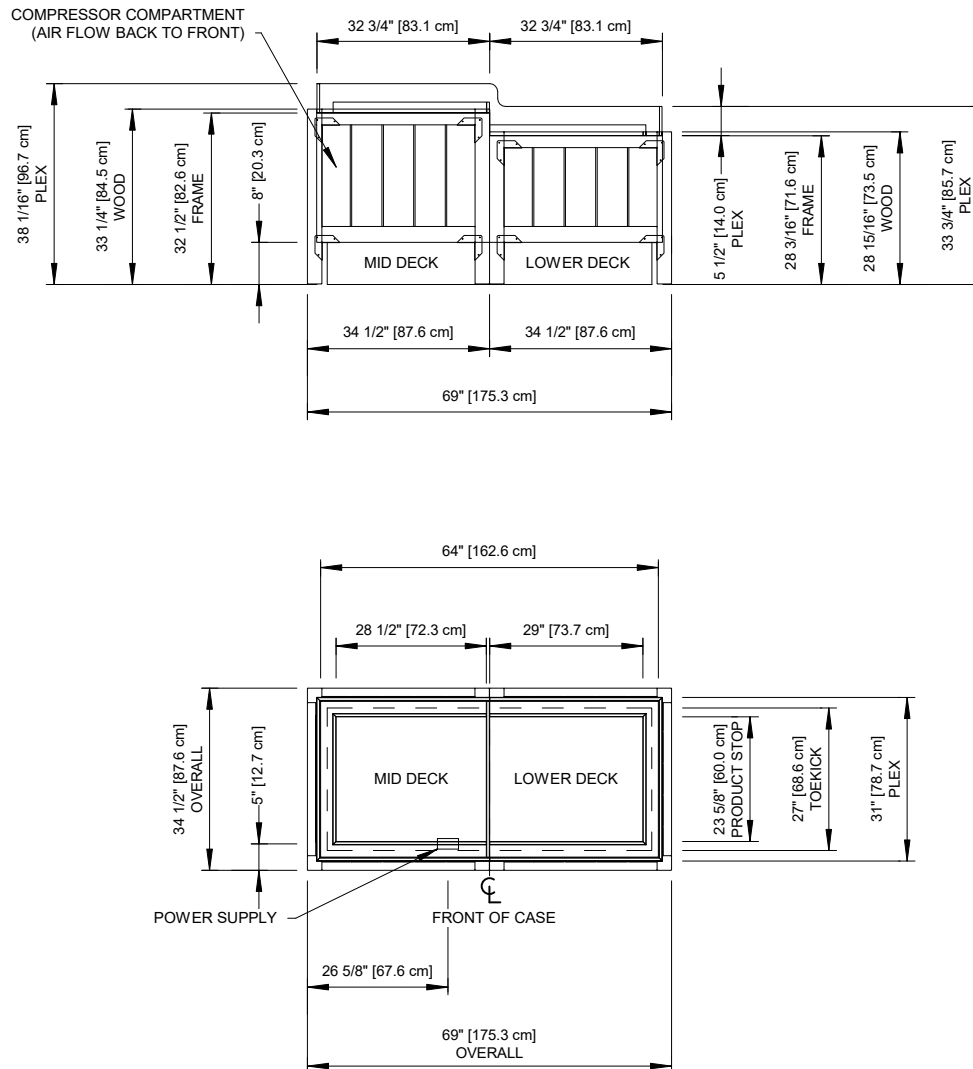


Hillphoenix

A BOWER COMPANY

OB-SC

Self-Service Open Multi-Deck Tiered Bulk Produce Merchandiser
1, 2 & 4 Tier (Produce)



NOTES:

- Shown with optional wood cladding.



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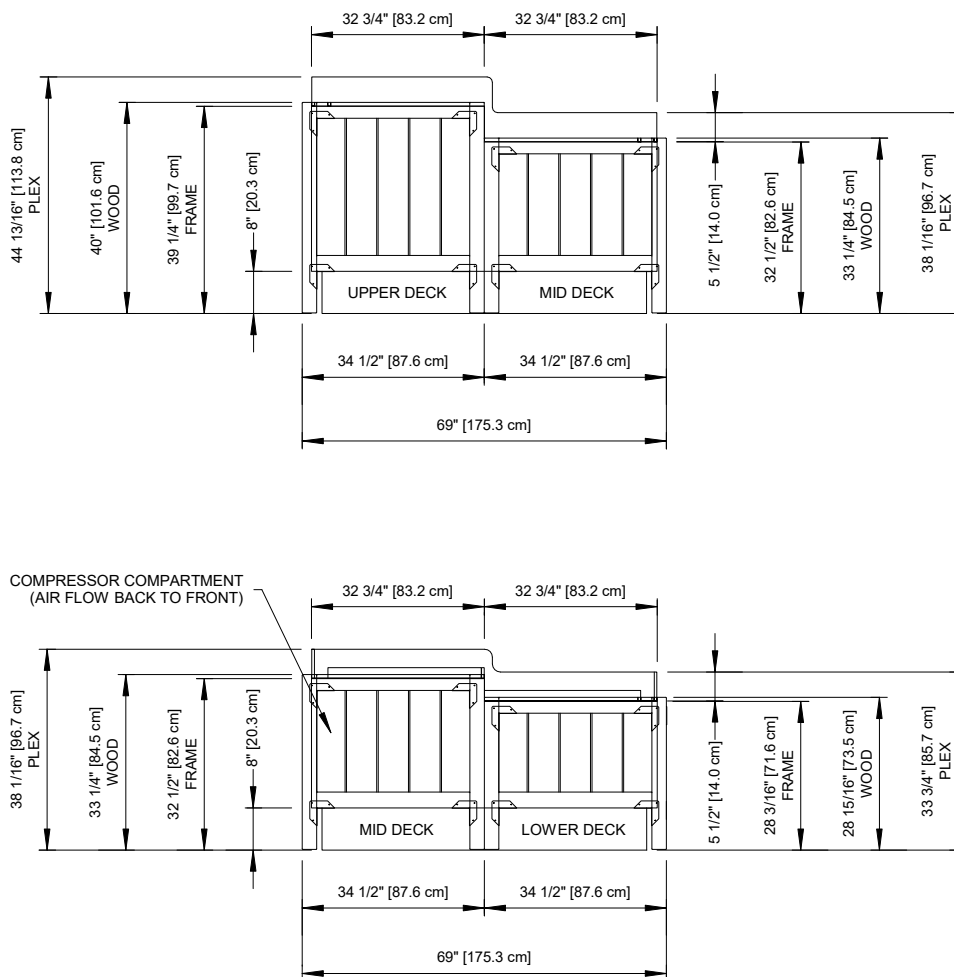
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02-10-21	3	DATA UPDATE
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Hillphoenix
A DEER COMPANY

OB-SC

Self-Service Open Multi-Deck Tiered Bulk Produce Merchandiser
1, 2 & 4 Tier (Produce)



NOTES:

- Shown with optional wood cladding.



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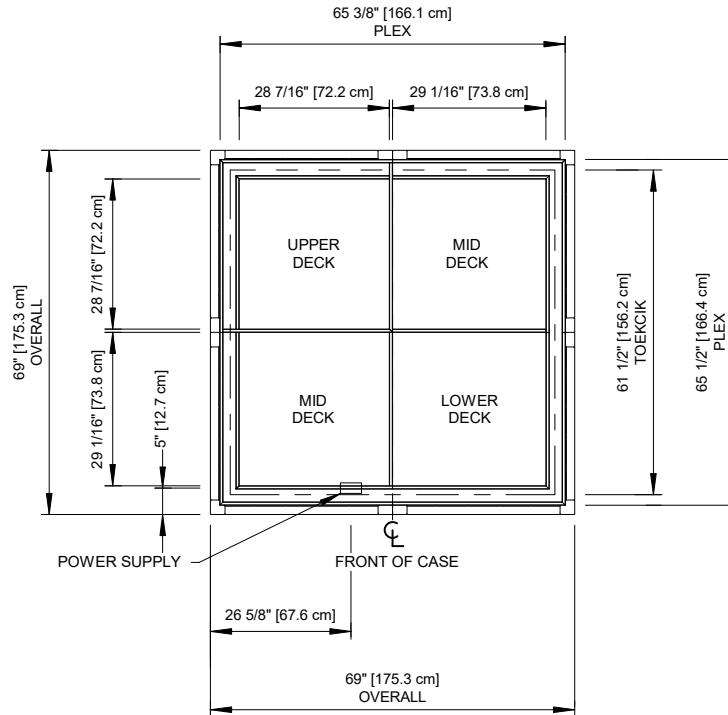


Hillphoenix



OB-SC

Self-Service Open Multi-Deck Tiered Bulk Produce Merchandiser
1, 2 & 4 Tier (Produce)



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Hillphoenix
A BEVERLY COMPANY

GENERAL INFORMATION

Thank you for choosing Hillphoenix for your food merchandising needs. This handbook contains important technical information and will assist you with the installation and operation of your new Hillphoenix specialty cases. By closely following the instructions, you can expect peak performance; attractive fit and finish; and long case life.

We are always interested in your suggestions for improvements (e.g. case design, technical documents, etc.). Please feel free to contact our Marketing Services group at the number listed below. Thank you for choosing Hillphoenix, and we wish you the very best in outstanding food merchandising.

CASE DESCRIPTION

This manual specifically covers the OB-S (R-290) produce self-service open single/multi-deck tiered bulk merchandiser.

STORE CONDITIONS

Hillphoenix cases are designed to operate in an air-conditioned store that maintains a 75°F (24°C) store temperature and 55% (max) relative humidity (ASHRAE conditions). Case operation will be adversely affected by exposure to excessively high ambient temperatures and/or humidity.

REFRIGERATION SYSTEM OPERATION

Air-cooled condensing units require adequate ventilation for efficient performance.

THIS UNIT CONTAINS R-290 FLAMMABLE REFRIGERANT. USE CAUTION WHEN HANDLING, MOVING OR SERVICING THE DISPLAY CASE. AVOID DAMAGING THE REFRIGERANT TUBING WHICH COULD INCREASE THE RISK OF A LEAK.

SHIPPING CASES

Transportation companies assume all liability from the time a shipment is received by them until the time it is delivered to the consumer. Our liability ceases at the time of shipment.

RECEIVING CASES

Examine fixtures carefully and in the event of shipping damage and/or shortages, please contact the Service Parts Department at the number listed below.

CASE DAMAGE

Claims for obvious damage must be 1) noted on either the freight bill or the express receipt and 2) signed by the carrier's

agent; otherwise, the carrier may refuse the claim. If damage becomes apparent after the equipment is unpacked, retain all packing materials and submit a written request to the carrier for inspection within 14 days of receipt of the equipment.

Failure to follow this procedure will result in refusal by the carrier to honor any claims with a consequent loss to the consumer.

If a UPS shipment has been damaged, retain the damaged material, the carton and notify us at once. We will file a claim.

LOST/MISSING ITEMS

Equipment has been carefully inspected to insure the highest level of quality. Any claim for lost/missing items must be made to Hillphoenix within 48 hours of receipt of the equipment. When making a claim please use the number listed below.

SERVICE PARTS & TECHNICAL SUPPORT

For service parts questions regarding our cases, please contact our Service Parts Department at 1-844-HPX-PART (1-844-479-7278) or dfr-ia-parts@doverfoodretail.com

For technical questions regarding our cases, please contact our Technical Support Department at 1-833-280-5714.

CONTACTING THE FACTORY

If you need to contact Hillphoenix regarding a specific fixture, be certain that you have both the case model number and serial number. (This information can be found on the data tag, located at the top-left interior, rear exterior panel or interior rear lower storage of the case. *Location may vary based on case design.*)

Hillphoenix Specialty Products
703 Franklin Street, PO Box 478
Keosauqua, IA 52565
Website: www.hillphoenix.com

LOCATION

This refrigerated display case has been designed for displaying and storing perishable food product. It is engineered for air-conditioned stores with a maximum ambient of 75°F and 55% relative humidity.

When selecting the location for placement of this case, avoid the following conditions:

Excessive Air Movement

1. Doors
2. Air-conditioned vents
3. Other air sources

Excessive Heat

1. Windows
2. Sun
3. Flood lamps 8 feet or less from the product
4. Other heat sources

FLOOR PREP

1. Ask the general contractor if your current copy of the building dimensions are the most recently issued. Also, ask for the points of reference from which you should take dimensions to locate the cases.
2. Using chalk lines or a laser transit, mark the floor where the cases are to be located for the entire lineup. The lines should coincide with the outside edges of the case feet.
3. Move case as close as possible to its permanent location. Remove all crating and shipping braces above the shipping pallet. Loosen the plastic dust cover from the pallet, but leave cover over the case to protect it while removing the case from the pallet.
4. The power cord shipping brace (Fig. 1) can be removed with a screw gun. As for case shipping braces, the same would be applied with sled runner or caster construction. If the braces are metal brackets or locks they can be removed with a screw gun. If they are wood blocks they can be removed with a J-bar. **Note: Shipping braces are normally located at each corner of the case. Some case models with casters will use bracing that surrounds the casters entirely and some will use braces that affix to the toe-kicks at each corner. (Shipping braces used vary and are based on case design for best transport.)**
5. Carefully, if horizontal supports, lift case up and off the pallet. Remove dust cover. Installation hardware ships in a marked packet located inside the case. Remove dust cover. Installation hardware ships in a marked packet located inside the case. (Hillphoenix self-contained display cases are sometimes designed with casters. In most situations, one or two persons can easily move the case into position.) If there are casters simply roll them on to

the store floor to the proper staging area. First remove all crating then all sled runner, caster, and/or power cord shipping braces. (Dependent on case design.)

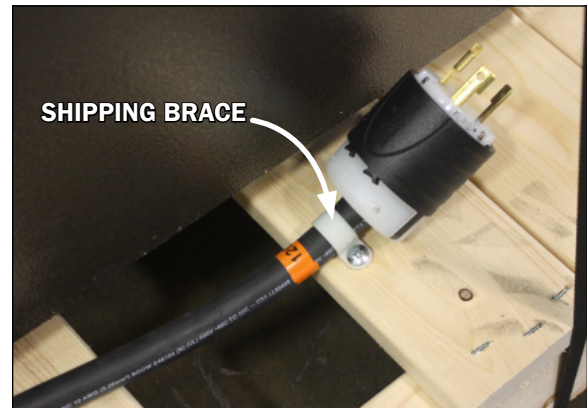


Fig. 1 Power cord shipping brace

6. Leveling is necessary to ensure proper operation of the refrigeration system and drainage of the condensate. Locate the highest point on the positioning lines as a reference for determining the proper height of the shim-pack levelers. A laser transit is recommended for precision and requires just one person. Level adjustable feet by twisting, if applicable, or shim as necessary under vertical stationary or caster supports as this will help ensure that the case is not settling over time.

CAUTION

Failure to properly level the case could result in lack of proper condensation drainage leading to failure of the unit.

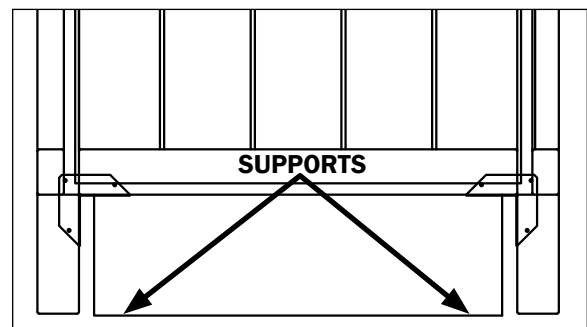


Fig. 2 Horizontal (sled runner) or vertical (caster) supports

7. Locate horizontal or vertical (caster) support positions along the chalk line (Fig. 2). Spot properly leveled shim packs at each support location.
8. (SLED RUNNERS) If necessary, drill a hole in each end of every horizontal support (Fig. 3) and fasten to the floor with concrete anchors. **Note: The holes do not need to be in the exact locations specified here. Be sure that the anchors are close to the end of the horizontal supports and at each corner of the case.**

CASE INSTALLATION

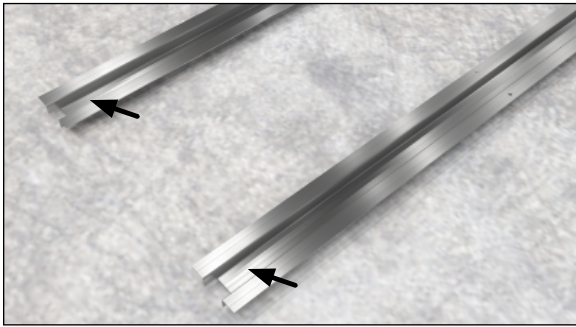


Fig. 3 Seismic anchoring locations (sled runners)

9. (CASTERS) If necessary, attach two brackets at two separate corners of the case (Fig. 4) and fasten to the floor with concrete anchors. **Note: The brackets do not need to be affixed in the exact locations specified here. However, be sure that the anchors are close to the corners and that at least two brackets are used, one at each corner.** You can use more than two brackets for anchoring if you want further support this way.

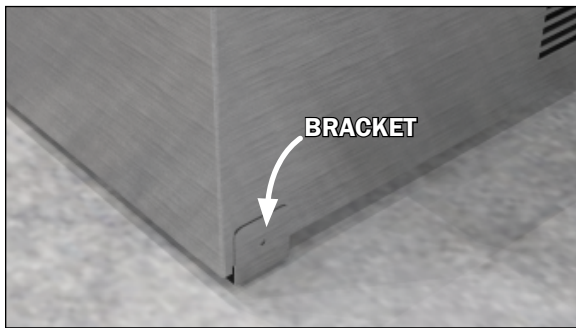


Fig. 4 Seismic anchoring locations (caster brackets)

⚠ CAUTION

Locate the horizontal or vertical (caster) supports under unit before removing from pallet. Failure to do so will damage the finished metal if correct lift points are not identified prior to removal.

⚠ CAUTION

These cases are not designed for excessive external weight. Do not walk on top or inside of cases. Doing so may result in case damage and/or personal injury.

⚠ WARNING

Be certain that your hands and feet are out of the way before lowering the case. Failure to do so may result in serious injury.

2. Once the case is properly placed on the shim packs, check the vertical plumb of the case by placing a bubble level on the rear wall. Add/remove shim packs as needed. For the horizontal level, repeat this process after placing the bubble level on the front sill.
3. Install the bumper, if applicable, into pre-attached bumper track and snap into place. (Most self-contained cases ship with bumper pre-installed.)
4. After sufficient time has passed to allow for bumper shrinkage, cut away the excess bumper for final fit and finish. Be certain to use an appropriate cutting tool (tubing- or PVC-cutter) to ensure a smooth cut.
5. Install case shelves and reconnect lights. Be aware that differing shelf configurations will affect energy consumption and case performance.
6. Install toekick/compressor compartment access panel back onto the base of case, if applicable.

⚠ CAUTION

Do not obstruct ventilation around the base of the display case condensing unit. Obstructing could cause the case to not operate correctly and failure to maintain product temperatures.

LINE-UP & INSTALLATION

Single Case

1. Move the case into position. Using a “J” bar, raise the end of the case (under cross support), and lower the horizontal support on to the shim packs. Repeat on the other end of the case.

ELECTRICAL

Electrical hookups are made through the junction box which can be accessed by removing the lower panel to the compressor compartment.

When connecting to the power supply on the case, field wiring should exit box from the side furthest away from case wiring to allow more room inside for wiring connections. The case must be grounded. *For more detailed electrical wiring information (see Appendix A1).*

Prior to plugging in and starting up the case always check the data tag located on the left end exterior panel or top interior of the case, as well as the voltage label found on the main power cord (Fig. 5) which can be found at the rear base panel. **Note:** **Check that the voltage of the receptacle you are going to use for power and the voltage required for the case match.**

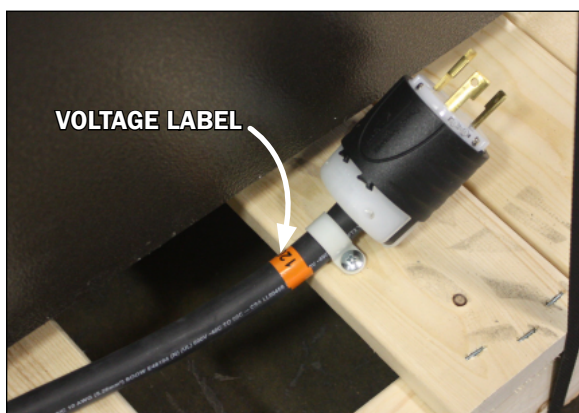


Fig. 5 Main power cord voltage label

⚠ CAUTION

Prior to plugging in and starting up the case.

Be certain that the voltage of the receptacle you are going to use and the voltage required for the case match. Failure to do so may result in case/system damage.

⚠ CAUTION

Be certain that all electrical connections are compliant with local codes.

⚠ DANGER

CAUTION, RISK OF ELECTRIC SHOCK. If the cord or plug becomes damaged, replace only with a cord and plug of the same type.

REFRIGERATION & COMPRESSOR COMPARTMENT

A bottom mounted compressor compartment can be accessed by removing the front or rear panel (Fig. 6). See Appendices

for full instructions on how to program the Carel electronic controller.

Access locations and/or R-290 compartment configurations will vary based on case design. See *technical references on pages 4-7 for access locations and page 12 for a compressor compartment diagram.*

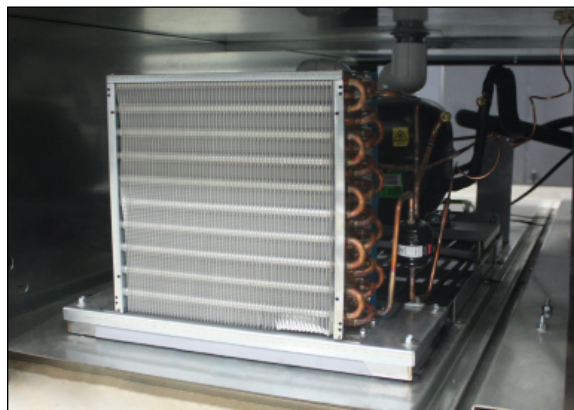


Fig. 6 Compressor compartment

⚠ CAUTION

Be sure to remove all styrofoam shipping blocks from piping and refrigerant lines. Failure to do so may result in case damage.

⚠ DANGER

When carrying out maintenance tasks inside the refrigerated case or compressor compartment, it is essential to disconnect the power source to the case from the main power.

Pressure Switch & Power Supply

1. After the main power cord (Fig. 5) located at the base panel of the case is plugged in and the power switch (Fig. 7) flipped to ON the case should begin normal operations.
2. The case should now be fully operational and functioning when in the ON position.

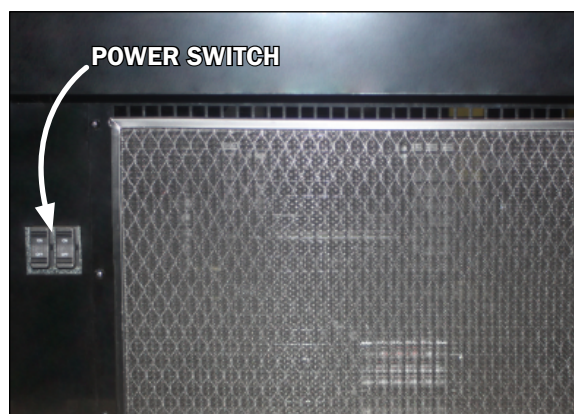


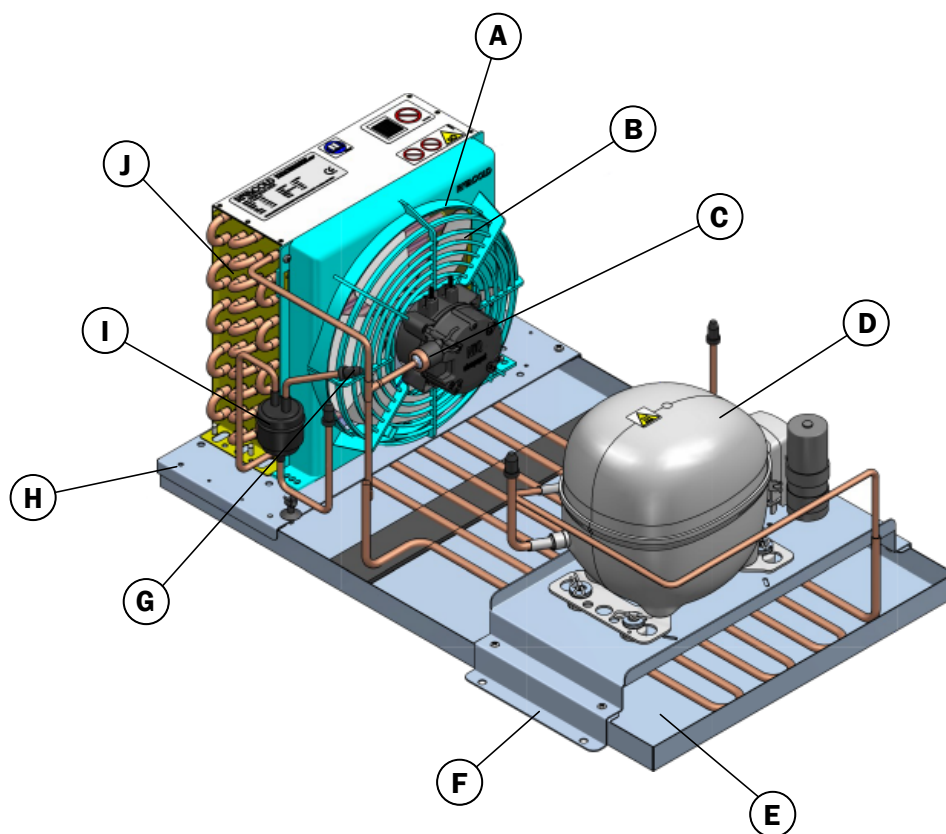
Fig. 7 Lower panel power switch



DANGER

ALWAYS CHECK THE THERMOSTAT CURRENT RATING. It may have a limited current, as low as 2A. If necessary protect digital thermostat contacts with a contractor.

R-290 COMPRESSOR COMPARTMENT DIAGRAM



A	Fan Guard	E	Dissipater Pan	I	Filter Dryer
B	Condenser Fan	F	Compressor Bracket	J	Condenser Coil
C	Pressure Switch	G	High Side Access		
D	Compressor	H	Condenser Bracket		

Note: Access locations and/or compartment configurations will vary based on case design.

Before powering-up the case, be certain that all of the steps listed below have been completed to ensure proper case functionality, safety and compliance with warranty terms.

- ☐ **Have you thoroughly examined the case for shipping damage? (see pg. 8)**
- ☐ **Have you checked to ensure the case is horizontally level? (see pg. 9)**
- ☐ **Have you checked all exposed refrigeration lines to ensure that they are not kinked, dented or rubbing together and have installed the compressor compartment access panel? (see pg. 11)**
- ☐ **Have you checked and verified the voltage of the receptacle you are going to use for power and the voltage required for the case match? (see pg. 11)**
- ☐ **Have you verified the display case switch is in the OFF position prior to plugging in to the main power source? (see pg. 11)**
- ☐ **Have you reviewed safety warning labels and verified all are present and in good condition?**

After powering-up the case, be certain that all of the steps listed below have been completed to ensure proper case functionality, safety and compliance with warranty terms.

- 1. Check case temperature and adjust controller as needed. All display case connections comply with the information/instructions?**
- 2. Store the installation manual in the vicinity of the display case itself to where it can be accessed and consulted by all members of staff involved in the use of the refrigerator display case.**
- 3. Before placing food in the display case, allow the case to operate for approximately two (2) hours and ensure the case is at the proper temp before loading.**

AIFLOW & DEFROST

AIRFLOW & PRODUCT LOAD

Hillphoenix cases provide maximum product capacity within the refrigerated air envelope. Please keep products within the appropriate load limit.

It is important that you do not overload the food product display so that it impinges on the airflow pattern (Fig. 8). Overloading will cause malfunction and the loss of proper temperature levels. The designed load limit is 3" above the deck for critical temperature products and 6" for non-critical temperature products. *For full technical reference drawings with load limit lines refer to pages 4-6.*

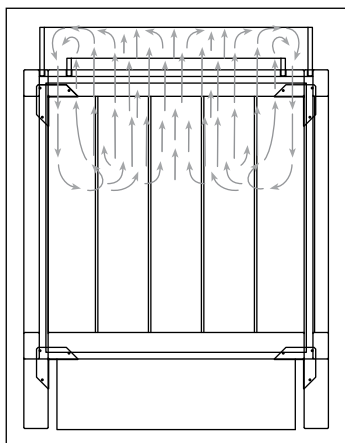


Fig. 8 Airflow pattern (1-tier)

! WARNING

Always keep product within the designated air curtain. Failure to do so may result in case malfunction and product losing proper temperature, resulting in sub-standard operation and increased chances of food contamination.

! CAUTION

Proceed to the loading only once the display case has reached the proper temperature setting.

DEFROST

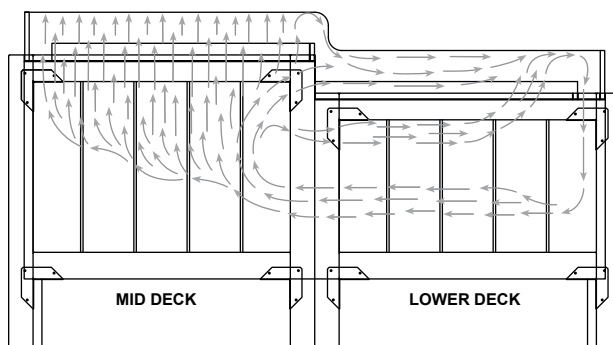
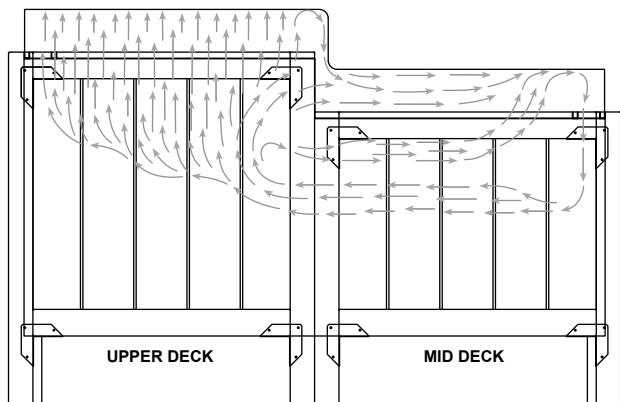
Cases are equipped with Temperature Terminated Off-Time defrost.

The defrost cycle is very important in that it ensures correct operation of the case. It is activated and controlled by the thermostat which temporarily stops the condensing unit, allowing the evaporator to shed the build-up of ice. The controllers synchronize the defrost between condensing units via the auxiliary ports.

! DANGER

FLAMMABLE

DANGER - Risk of Fire or Explosion. Flammable Refrigerant Used. Do Not Use Mechanical Devices To Defrost Refrigerator. Do Not Puncture Refrigerant Tubing.



Note: The tier configuration will vary. The diagrams above depict the airflow for a 2-tier and/or 4-tier airflow pattern.

CASE CLEANING

A periodic cleaning schedule should be established to maintain proper sanitation, insure maximum operating efficiency, and avoid the corrosive action of food fluids on metal parts that are left on for long periods of time. We recommend cleaning once a week. Further suggestions for case cleaning include the following:

- To avoid shock hazard, be sure all electrical power is turned off before cleaning. In some installations, more than one disconnect switch may have to be turned off to completely de-energize the case.
- All surfaces pitch downward to a deep-drawn drain trough, funneling liquids to the center of the case where the waste outlet is located for easy access. Check the waste outlet to insure it is not clogged before starting the cleaning process and avoid introducing water faster than the case drain can carry it away.
- To clean the LED luminaires, shut off the lights in the case, then wipe the luminaires down with a soft, damp cloth. Avoid using harsh or abrasive cleaners as they may damage the lights. Be certain that the luminaires are completely dry before re-energizing.
- Clean from top to bottom when cleaning the display case to avoid cross contamination.
- If any potentially harmful cleaners are used, be certain to provide a temporary separator (e.g., cardboard, plastic wrap, etc.) between those cases that are being cleaned and those that may still contain product.
- Avoid spraying any cleaning liquids directly on the electrical connections.
- Allow cases to be turned off long enough to clean any frost or ice from coil and pans.
- Remove toekick and clean underneath the case with a broom and a long-handled mop. Use warm water and a disinfecting cleaning solution when cleaning underneath the cases.



DANGER

SHOCK HAZARD

Always disconnect power to case when servicing or cleaning. Failure to do so may result in serious injury or death.



CAUTION

Use specific products for disinfection and cleaning: use soft, non-abrasive sponges and rags!

Fans and Pressure Plate

1. Disconnect power to the case and wait for fans to come to a complete stand-still.

2. To reach the fans and pressure plate first remove the base deck with help of the pre-drilled access lift supplied (Fig. 9 & 10). **Note: It is recommended that more than one person lift the deck.**

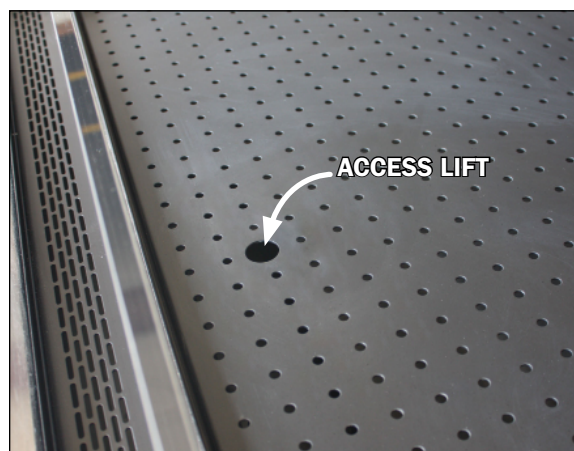


Fig. 9 Base deck pre-drilled access lift

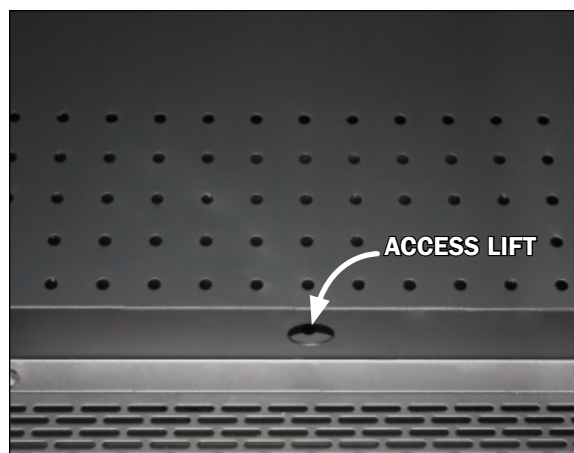


Fig. 10 Base deck pre-drilled access lift

3. To access the underside of the fans first remove the screws on the top ends and front sill of the pressure plate cover (Fig. 11). Lift the pressure plate by use of the provided lift handles (Fig. 11). There are hinges shared between the pressure plate and coil covers. **Note: It is recommended that more than one person lift the pressure plate.** The topside of pressure plate will rest against the topside of the coil cover, exposing the underside of the pressure plate and fans.
4. Clean as necessary. Use a spray bottle filled with an approved mild detergent and warm water.
5. Be sure to move the pressure plate back to its original position after cleaning and/or inspection is complete.



CAUTION

Only lift the pressure plate and/or coil cover for a qualified inspector or a trained service provider. Failure to do so may result in damage to the refrigerant system.

CASE CLEANING

DANGER

When carrying out cleaning work or maintenance on the condensing unit it is essential to disconnect the machine and all its accessories from the main power.

DANGER

DANGER OF BURNS

Be careful of the elements inside the condensate dissipator pan: this operates at high temperature.

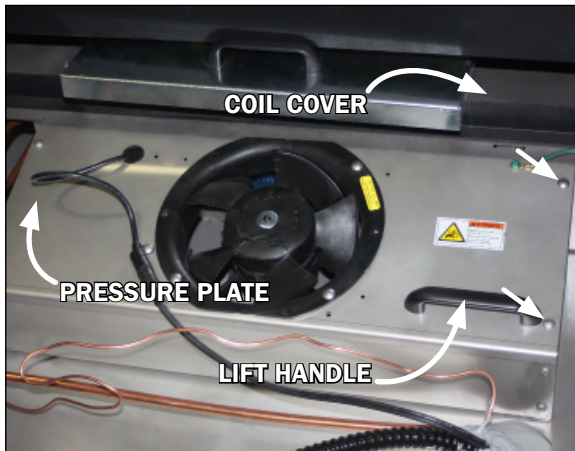


Fig. 11 Pressure plate, coil cover, screws and lift handle

Coil Inspection

1. Disconnect power to the case and wait for fans to come to a complete stand-still.
2. Remove the top two screws at both ends of the coil cover (Fig. 11), as well as the screws from the top ends and front sill of the pressure plate cover (Fig. 11). **Be sure to save the removed screws for reassembly.**
3. Carefully, without bending the sheet metal cover, with the use of the handles provided, gently slide the coil cover with the pressure plate assembly forward to expose the evaporator coil.

WARNING

Exercise extreme caution when working in a case with the pressure plate removed. The coil contains many sharp edges that can result in severe cuts to the hands and arms.

WARNING

Exercise extreme caution when working in a case with the coil cover removed. The coil contains many sharp edges that can result in severe cuts to the hands and arms.

4. Clean as necessary. Use a spray bottle filled with an approved mild detergent and warm water. **This location should be accessed by qualified personnel only.**
5. Be sure to screw the coil cover back to its original position after cleaning and/or inspection is complete.

CAUTION

Always be sure to move the pressure plate and screw the coil cover back to their original position after the cleaning and/or inspection is complete. Failure to do so may result in damage to the refrigerant system.

DANGER

FLAMMABLE

DANGER - Risk of Fire or Explosion. Flammable Refrigerant Used. Do Not Use Mechanical Devices To Defrost Refrigerator. Do Not Puncture Refrigerant Tubing.



Condenser Air Intake Filter

Clean and remove the debris from the condenser air intake filter monthly. If filter is not cleaned regularly the head pressure will rise and cut all power off to the compressor by means of the pressure switch.

The filter will either have a slide-out screen or pull-off magnetic application. **Note: Prior to cleaning, be sure to remove the filter from the case completely and move to a distance far enough away that no debris will come in to contact with the case or the product inside.** Both can be cleaned with an air hose and/or rinsed with water. Be sure to remove all debris and wait until completely dry before placing back on to the case. (Top mounted compressors will not have an air intake filter.)

CAUTION

Be sure to clean the condenser air intake filter monthly. Failure to do so may result in loss of normal compressor functions and case damage.

Cleaning Condensate Dissipator Pan

Inspect the dissipator pan (Fig. 12) at least once every six months. Ensure you disconnect the electrical power supply and make sure you DO NOT touch the elements as they reach

high temperatures (necessary for evaporation inside the pan).

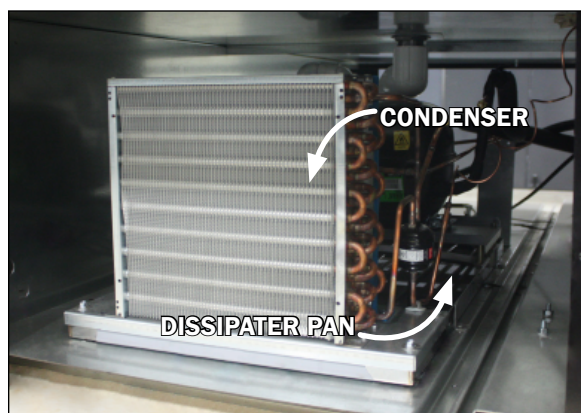


Fig. 12 Cleaning the dissipator pan and condensing unit

Cleaning Condenser

The condensers used on the condensing units gather dust and dirt and must be cleaned regularly. Under normal working conditions this task must be executed at least once a month using a soft-bristled brush and a vacuum cleaner. A dirty condenser will reduce the display case performance: it will also result in increased energy consumption. (Fig. 13)

UNSCHEDULED CASE MAINTENANCE

Unscheduled maintenance concerns all those tasks that can-

not normally be carried out by the routine user as specified. Such tasks require qualified personnel with specific technical skills (e.g. refrigeration system specialists, electricians etc.) and must be carried out at least once a year. See the scheduled maintenance table for a list of the main tasks. (Fig. 13).

If inspection reveals any rust, cracks and etc...it will be necessary to carry out repairs and/or replacement of parts so that the case meets code and the display case is in prime operating condition. To enhance safety, it is recommended that you always seek the advice of a specialized technician before carrying out any repair work.

PARTS SUBJECT TO WEAR & SPARE PARTS

Most spare parts carry clear, complete ID information. It is important that the refrigerated case parts be replaced by analogous parts of equivalent safety and quality: to order spare parts please contact Hillphoenix, stating the case model and serial number, found in this manual or on the case ID plate, and provide a description of the component and the desired quantity. Refer to the Parts section in the back of the manual for parts ordering and to identify parts that may need to be replaced.



CAUTION

Do not pressure wash equipment as damage to electrical components may result.

SCHEDULED MAINTENANCE TABLE

Maintenance	Weekly	Monthly	Half Yearly	Yearly
Cleaning case	✓			
Cleaning gas condenser		✓		
Case visual check	✓			
Safety labels visual check	✓			
Check electric system				✓
Check water drainage system.			✓	
Check refrigeration system				✓
General inspection				✓

Fig. 13 Recommended cleaning schedule

TROUBLESHOOTING

INSTRUCTIONS FOR PERSONNEL

In the Event of General Emergency

Immediately inform those in the vicinity of the perceived danger, gesticulating if necessary; cut the electrical power to the cabinet.

In the Event of Fire

In the event that the refrigerated case catches fire or is involved in a fire it is possible to use an extinguisher with a powder-type or CO2 extinguishing agent.

Resetting the Case

To restore normal operation it is necessary to eliminate all the causes of the emergency situation; if necessary repair or replace damaged parts.

Note: If safety devices are tripped it will be necessary to identify the cause before continuing work.

CAUTION

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.

CAUTION

R-290 flammable refrigerant in use. Improper installation, adjustment, alteration, service or maintenance can cause property damage, injury or death. Read the installation operating and maintenance instructions thoroughly before installing or servicing this equipment.

DANGER

FLAMMABLE

DANGER - Risk of Fire or Explosion. Flammable Refrigerant Used. Do Not Use Mechanical Devices To Defrost Refrigerator. Do Not Puncture Refrigerant Tubing.



TABLE OF FAILURES AND SHOOTING

PROBLEM	POSSIBLE CAUSE	SOLUTION
The refrigerated cabinet does not work.	1) the mains circuit breaker is set to OFF; 2) the power line between refrigerated cabinet and power socket is faulty; 3) the switch on the refrigerated cabinet control panel is not switched on.	1) turn the mains power on; 2) make sure the plug is inserted properly in the socket; 3) turn the power switch on the refrigerated cabinet panel to ON.
The refrigerated cabinet does not cool enough.	1) the temperature thermostat is adjusted incorrectly; 2) the refrigerated cabinet has been filled too much 3) the condensing unit is clogged with dust 4) the evaporator is covered in ice	1) reprogram the temperature thermostat; 2) remove goods and observe the maximum load level; 3) clean the condensing unit with a soft-bristled brush and vacuum cleaner 4) carry out a defrost cycle.
The refrigerated cabinet cools too much.	1) the temperature thermostat is adjusted incorrectly.	1) reprogram the temperature thermostat;
The refrigerated cabinet runs continuously.	1) the temperature thermostat is adjusted incorrectly; 2) the refrigerated cabinet has been filled too much and is preventing correct air circulation.	1) reprogram the temperature thermostat; 2) remove goods and observe the maximum load level.

FAILURES AND SHOOTING

Failures

In the event of a failure of mechanical/electrical/refrigeration parts the initial safety conditions must be restored immediately by replacing or repairing such faulty parts.

SAFETY DEVICES

**WARNING**

It is absolutely forbidden for the user to tamper with safety devices. Before using the refrigerated case check that mechanical safety covers are properly in place. Any tampering shall render the warranty null and void and exonerate Hillphoenix from any liability with regard to users of the refrigerated case.

Only maintenance personnel may carry out maintenance tasks involving safety devices. These tasks are listed below.

SAFETY DEVICE	SCOPE OF INTERVENTION	ACTION
Incorporated over-pressure cut-out	On incorporated condenser unit compressor	Cuts the electrical power of the compressor if the pressure of the refrigerant rises above the safety limits.
Fixed cover on electrical control panel. Remove only with aid of tools	Electrical control panel	Prevents access to live parts. Electrical danger warning sign applied (see "DESCRIPTION OF DANGERS AND RISKS RESIDUAL")
Fixed safety gratings. Remove only with aid of tools	On evaporator fans.	Prevents access to fans when they are running or slowing down to a stop.

DESCRIPTION OF DANGERS AND RISKS RESIDUAL

Residual Dangers

Dangers that have not been reduced/eliminated with the safety measures adopted on the refrigerated case can nevertheless be reduced/eliminated as long as users apply proper managerial practices. Users must:

- ☐ Ensure that all safety warning and labels are always in good condition; inspect them periodically and have them replaced whenever necessary.
- ☐ Do not install any spare parts that are not identical to the originals or of equivalent performance.
- ☐ Do not carry out any modifications or structural work without approval from Hillphoenix or a qualified field service technician.
- ☐ Should the refrigerated case be dented, inspect the structure visually or have qualified personnel carry out an inspection.

After a long period of disuse have a qualified field service technician carry out an inspection of the case to check that it is in good condition and working properly.

Residual Risks

While the refrigerated case has been designed to ensure maximum safety, there nevertheless remain some residual risks. Hillphoenix has identified the main **dangers and residual risks for users and maintenance personnel** as follows in chart below:

SCHEDULED MAINTENANCE TABLE

DESCRIPTION OF RESIDUAL RISK	CAUSE	SAFETY MEASURES
Danger of falls in area surrounding the cabinet	Presence of: stairs, columns etc. and/or slippery floors and objects and/or work tools	Mark out the relevant zones and highlight them with warning signs and symbols (e.g. yellow/black striped marker tape on stairs etc.) that are visible during both routine use and maintenance.
Danger of objects accidentally falling	Haphazard storage of tools/objects.	Use tool boxes in work areas. Ensure personnel are trained.
Danger of injury to hands, arms, legs and head	During cleaning and maintenance there may be objects or parts of the cabinet protruding from the case itself (e.g. glass covers open during cleaning)	Mark out the work area with appropriate barriers. Always use the recommended personal safety devices.
Risk of refrigerating gas leaks	Accidental damage to pipes	Immediate shutdown of case operation. Disconnect electrical power supply. Contact a service technician.

SAFETY DEVICES & SERVICE

REFRIGERANT

This piece of equipment uses a R-290 Refrigeration system. This equipment has been clearly marked on the serial tag the type of refrigerant that is being used. There is also a warning labels stating that the unit contains R-290 refrigerant.

No smoking or open flames when servicing this equipment. If needed, use a CO2 or dry=power type fire extinguisher

Only authorized service technician, certified in R-290 system should service this equipment.

MANIFOLD SET

A R-134A manifold set can be used for servicing this equipment.

REFRIGERANT RECOVERY

Follow all national and local regulations for R-290 refrigerant recovery.

LEAKING CHECKING AND REPAIR

Leak check an R-290 system the same way you would an R-134a or R-404A system with the following exceptions.

1. Do not use a Halid leak detector on a R-290 system.
2. Electronic leak detector must be designated specifically for combustibile gas.

Use of a bubble solution or an ultrasonic leak detector are acceptable.

When repairing a leak, it is recommended using oxygen free dry nitrogen with a trace gas not exceeding 200PSI.

When accessing an R-290 system, proper charge is to be weighed into the system and the system is to be leak checked afterwards.

The R-290 equipment must have red process tubes and other devices through which the refrigerant is serviced, such as any service port. This color marking must remain on the equipment. If marking is removed, it must be replace and extend at least 2.5 centimeters (1") from the compressor.

- Ensure the system is sealed and leak checked
- Evacuate system to a minimum 500 micron
- Weigh in correct charge
- Leak check the system again
- Bleed the refrigerant from the high side hose to the low side hose
- Disconnect the hoses
- Remove line taps

DANGER

FLAMMABLE

DANGER - Risk of Fire or Explosion. Flammable Refrigerant Used. Do Not Use Mechanical Devices To Defrost Refrigerator. Do Not Puncture Refrigerant Tubing.



CAUTION

It is highly recommended that a technician servicing a case with HC refrigerant is aware of safety considerations and maintenance procedures on how to safely handle flammable refrigerants.

CAUTION

Component parts shall be replaced with like components. Service work shall be done by factory authorized service personnel, so as to minimize the risk of possible ignition due to incorrect parts or improper service.

CHARGING

Follow the charge amount specified on the data tag. It is recommended to use the shortest hoses possible to prevent under-charging.



Contact the Service Parts Department at:

1-844-HPX-PART (1-844-479-7278)

or

dfr-ia-parts@doverfoodretail.com

Provide the following information about the part you are ordering:

- **Model number and serial number* of the case for which the part is intended.**
- **Length of the part (if applicable).**
- **Color of part (if painted) or color of polymer part.**
- **Whether part is for left or right-hand application.**
- **Quantity**

***Data tag is located on the left end exterior panel or top interior of the case.**

If the parts are to be returned for credit, contact the Parts Department. Do not send parts without authorization.

A1	Wiring Information
B1-B2	Carel Operating Instructions
C1	Sporlan Pressure-Temperature Chart (R290)
D1	Parts List

A1: WIRING DIAGRAM

TBD

B1: CAREL OPERATING INSTRUCTIONS

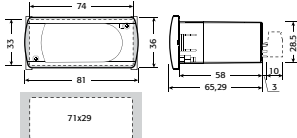
+05000440 - rel. 16 - 28.10.2020

EASY (PIEZ* and PQEZ*) - controlli elettronici per unità statiche/ventilate a normale/bassa temperatura / electronic controller for static/ventilated normal/low temperature units

CAREL

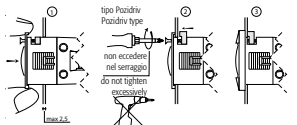


Dimensioni (mm) / Dimensions (mm)

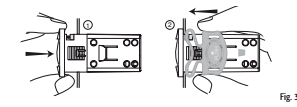


Montaggio a pannello / Panel mounting

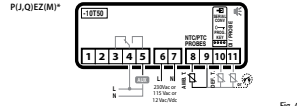
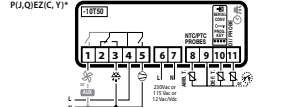
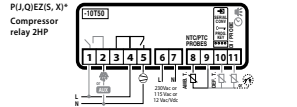
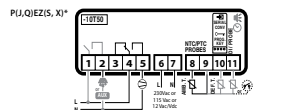
Frontale (con 2 viti a 2,5x12 mm) / Front (with 2 screws ø 2,5x12 mm)



Da dietro (con 2 staffe posteriori) / Rear (with 2 quick-fit side brackets)



Collegamenti elettrici / Electrical connections



serial conv. IBCP485SD
pass. key IBCP254* or PQSP254*
12 Vdc/Volts
transformers: TRAU0011 or TRAU0020

Code alarm	buzzer e relé	LED	Descrizione allarme	Parametri coinvolti
E0	attivo	on	emissione sonda 1= regolazione	
E1	non attivo	off	emissione sonda 2= defrost	(A0=0) / 1
E2	attivo	on	emissione sonda 3= condensatore	(A0=0)
E3	attivo	on	allarme sistema	(A0=1) (A0=1)
E4	attivo	on	allarme porta aperta	(A0=1) (A0=1)
E5	attivo	on	allarme bassa temperatura	(A0=1) (A0=1)
E6	attivo	on	allarme alta temperatura	(A0=1) (A0=1)
E7	non attivo	off	emissione parametri macchina	
E8	non attivo	off	emissione parametri funzionamento	
E9	non attivo	off	defrost finito per timeout	(A0=1) (A0=1)
F0	non attivo	off	defrost errore	(A0=1) (A0=1)
F1	non attivo	off	pre-allarme condensation spacio	(A0=1) (A0=1)
F2	non attivo	off	allarme condensation spacio	(A0=1) (A0=1)
F3	non attivo	off	allarme analogico	(A0=1) (A0=1)

Code alarm	buzzer e relé	LED	Description	Parameters involved
E0	active	on	probe 1 error-control	
E1	inactive	off	probe 2 error-defrost	(A0=0) / 1
E2	inactive	off	probe 3 error-condenser	(A0=0)
E3	active	on	external alarm	(A0=1) (A0=1)
E4	active	on	open door alarm	(A0=1) (A0=1)
E5	active	on	low temperature alarm	(A0=1) (A0=1)
E6	active	on	high temperature alarm	(A0=1) (A0=1)
E7	inactive	off	unit parameter error	
E8	inactive	off	operation parameter error	
E9	inactive	off	defrost ended by timeout	(A0=1) (A0=1)
F0	inactive	off	defrost error	(A0=1) (A0=1)
F1	inactive	off	condensation delay pre-alarm	(A0=1) (A0=1)
F2	inactive	off	condensation delay alarm	(A0=1) (A0=1)
F3	inactive	off	clock alarm	(A0=1) (A0=1)

Smaltimento del prodotto: l'apparecchiatura (o il prodotto) deve essere smaltita o riciclata separatamente in conformità alle vigenti normative locali in materia di smaltimento.
Disposal of the product: the appliance (or the product) must be disposed of separately in accordance with the local waste disposal legislation in force.

Descrizione
PIEZ* e PQEZ* (mod. S, C, M, Y, X) rappresentano una gamma di regolatori elettronici a microprocessore con visualizzazione a LED realizzati per la gestione di unità frigorifere, vetine e banchi frigo: i regolatori PIEZ* sono dotati di rete standard; i regolatori PQEZ* sono progettati specificatamente per l'utilizzo in applicazioni con gas refrigeranti infiammabili.

Modelli disponibili:
• PIQEZS*, indicata per la gestione di unità frigorifere statiche, prive di ventilatore sull'evaporatore, funzionanti con temperatura sopra lo 0°C.
• PIQEZM*, indicata per la gestione di unità frigorifere ventilate in bassa temperatura.
• PIQEZV*, indicata per la gestione di unità frigorifere statiche, prive di ventilatore, funzionanti a bassa temperatura.
• PIQEZM*, soluzione per la semplice misurazione della temperatura.
Note: mod. Y= relé collegato elettronicamente all'interno tra loro; mod. X= relé indipendenti.

alimentazione	PIEZ	PQEZ
• 230 Vac +10/-15% 50/60 Hz; 115 Vac +10/-15% 50/60 Hz	UL60730 12 A Res. 12 FLA 72 FLA 240 Vac****	UL60730 12 A Res. 8 FLA 48 FLA 240 Vac
• 12 Vdc +10/-15% 50/60 Hz class 2; 12 Vdc +10/-20% class 2	UL60730 12 A Res. 10 FLA 60 FLA 240 Vac****	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac
potenza max. 15,5 VA	UL60730 12 A Res. 10 FLA 60 FLA 240 Vac****	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac
ingresso (*)	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A
	EN60730 12 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
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	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
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	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A	EN60730 10 A Res. 10 FLA 60 FLA 240 Vac C00, 16 A
	UL60730 12 A Res. 5 FLA 30 FLA 240 Vac C00, 16 A	EN60730 10 A Res

B2: CAREL OPERATING INSTRUCTIONS

ITA **Visualizzazione e funzioni**
Durante il normale funzionamento il controllore visualizza a display il valore della sonda impostata con il parametro H (+/-) sonda ambiente di default, +/-2 secondo il parametro S, mentre sul display appaiono i LED che indicano l'attivazione delle funzioni del controllore (vedi Tab. 1), mentre i test permettono di attivare/disattivare alcune funzioni (vedi Tab. 2).

LED e funzioni associate

icona	funzione	ON	normale funzionamento	OFF	blank	start up
	compressore	acceso	spento	richiesto	ON	
	ventilatore	acceso	spento	richiesto	ON	
	defrost	acceso	spento	richiesto	ON	
	AUX	uscita accesa	uscita spenta	richiesto	ON	
	alarme	tutti	nessun allarme	richiesto	ON	
	orologio	RTC presente e abilitato, ed è stata impostata almeno 1 fascia oraria	RTC assente o disabilitato, o non è stata impostata nemmeno 1 fascia oraria	ON se RTC presente	ON	

Tabella attivazione funzioni tramite i tasti - mod. S, X, Y, C			
tasto	normale funzionamento		start up
	pressione del singolo tasto	pressione combinata	
	più di 3 s: alterna stato ON/OFF	Premuti insieme attiva/disattivano ciclo continuo	-
	più di 3 s: attiva/disattiva defrost	-	Premuti insieme attivano procedura
	- 1 s.: visualizza/permette di impostare set point	-	per 1 s visualizza cod. vers. firmware per 1 s RESET banco

		in impostazione parametri (inserire password "22")	RESET parametri	LED corrente
		- Tasto allarme acustico (buzzer)		
Tab. 2				
Tabella funzioni tasti - variante mod. M				
tasto	normale funzionamento	start up		
	selezione rapida sonda visualizzata	Premuto insieme a "set" attiva procedura RESET parametri.	per 1 s visualizza cod. vers. firmware	
Tab. 3				

Impostazioni di serie del punto (valore di temperatura desiderato)
• premere per 1 s. SET, dopo alcuni istanti il valore impostato lampeggia;
• aumentare o diminuire tale valore con UP o DOWN;
• premere SET per confermare il nuovo valore.

ON/OFF dello strumento

Premere per più di 3 s. UP in questa condizione gli algoritmi di regolazione e defrost sono disabilitati e lo strumento alterna la visualizzazione a display messaggio "OFF" a quella della temperatura della sonda impostata.

Sbrinatorio manuale (solo per mod. S, X, Y e C)

Premere per più di 3 s. DOWN (si attiva solo se sussistono le condizioni di temperatura).

Ciclo continuo (solo per mod. S, X, Y e C)

Premere contemporaneamente per più di 3 s. UP e DOWN.

Selezione rapida sonda visualizzata (solo per mod. M)

Premere rapidamente DOWN per selezionare la sonda da visualizzare temporaneamente.

Accesso e modifica parametri tipo F (frequenti) e tipo C (configurazione)
1. premere SET per 3 s (sul display compare "PS");
2. per accedere al menu parametri di tipo F e digitare la password "22" con UP/DOWN;
3. per accedere solo ai menu parametri F premere SET (senza digitare la password);
4. navigare all'interno dei menu parametri premendo UP/DOWN;
5. per visualizzare/modificare i valori dei parametri visualizzati premere SET, quindi UP/DOWN ed infine SET per confermare la modifica (si ritorna così al menu dei parametri).
Per salvare definitivamente tutti i valori modificati ed uscire dal menu parametri premere SET per 3 s.
Se uscire dal menu senza salvare i valori modificati (uscita per time out) non premere alcun tasto per almeno 60 s.

Normative di sicurezza

conforme alle Normative europee in materia. Precauzioni d'installazione:
• i cavi da collegamento devono garantire l'isolamento fino a 90 °C;
• per le versioni 12 Vac utilizzare trasformatori Classe II. Per i modelli delle normative EN 61000-4-4, EN 61000-4-5, EN 61000-4-11, EN 61000-4-6, EN 61000-4-7, i trasformatori deve essere uno dei modelli indicati (vedi Lista Prezzi CAREL). Per le versioni 12 Vac/230, non essendo possibile garantire il doppio isolamento tra il connettore di alimentazione e le uscite relè, si raccomanda di utilizzare cavi schermati isolanti in bassissima tensione di sicurezza (fino a 42 V nominali di valore efficace);
• prevedere almeno 10 mm di distanza tra i contenitori e parti conduttive viventi;
• collegamenti degli ingressi digitali e analogici inferiori a 30 cm di distanza; adottare le adeguate misure di separazione dei cavi per il rispetto delle norme suddette.
Bloccare bene i cavi di connessione delle uscite per evitare contatti con parti in bassissima tensione di sicurezza.

Certificazioni solo per PGEZ

Applicazioni con gas refrigeranti infiammabili: IEC/EN UL 60535-2-24 (clausole 22.109, 22.110) - IEC/EN UL 60535-2-40 (clausole 22.116, 22.117) - IEC/EN UL 60535-2-49 (clausole 22.107, 22.108, 22.109, 22.109) per gas R50, R52, R600, R600a, R-1234ze (clausole 17 e 19, applicabili ai relè in base alla loro tipologia. Accettabilità deve essere sempre verificata e segnalata nella applicazione finale).

ENG Display and functions

During the normal operation, the controller displays the value of the probe set using parameter H (+/-) ambient probe, default, +/-2 second probe, while the LEDs that indicate the activation of the control functions (see Table 1), while the 3 buttons can be used to activate/deactivate some of the functions (see Table 2).

LEDs and associated functions

icon	function	ON	normal operation	OFF	blank	start up
	compressor	on	off	required	ON	
	fan	on	off	required	ON	
	defrost	on	off	required	ON	
	AUX	output on	output off	required	ON	
	alarm	all	no alarm	required	ON	
	clock	RTC fitted and enabled, at least 1 time band set	RTC not fitted or disabled, not even 1 time band set	ON if RTC fitted	ON	

Table of functions activated by the buttons - models S, X, Y, C			
button	normal operation		start up
	pressing the button alone	pressed together	-
	more than 3 s: toggle ON/OFF	Pressed together start/stop continuous cycle	-
	more than 5 s: start/stop defrost	Pressed together start/stop continuous cycle	for 1 s display firmware vers. code
	- 1 s.: display/set the set point - more than 3 s.: access parameter setting menu (enter password "22") - mute audible alarm (buzzer)	-	for 1 s RESET current EZY set procedure
Tab. 2			

Table of button functions - variant model M			
button	normal operation	start up	
	rapid selection of probe displayed	Pressed together "set" start parameter reset procedure	for 1 s display firmware vers. code

Tab. 3

Setting the set point (desired temperature)

• press SET for 1 s, the set value will start flashing after a few moments;
• increase or decrease the value using UP or DOWN;
• press SET to confirm the new value.

Switching the device ON/OFF

Press UP for more than 3 s. The control and defrost algorithms are now disabled and the instrument displays the message "OFF" alternating with the temperature read by the set probe.

Manual defrost (models S, X, Y and C only)

Press for DOWN more than 3 s. the defrost algorithm is now disabled (provided temperature conditions are valid).

Continuous cycle (models S, X, Y and C only)

Press UP and DOWN together for more than 3 s.

Rapid selection of probe displayed (model M only)

Press DOWN briefly to select the probe to be temporarily displayed.

Access and setting type F (frequent) and type C (configuration) parameters
1. press SET for 3 s (the display will show "PS");
2. to access the type F and C parameter menu, enter the password "22" using UP/DOWN;
3. to access the F parameter menu only, press SET (without entering the password);
4. to access the parameter menu only, press SET (without entering the password);
5. to display the values of the parameters displayed, press SET, then UP/DOWN and finally SET to confirm the changes (returning to the parameter menu).
To save all the new values and exit the parameter menu, press SET for 3 s.
To exit the menu without saving the changed values (exit by timeout) do not press any button for at least 60 s.

Safety standards

compliant with the relevant European standards. Installation precautions:
• the connection cables must guarantee insulation up to 90 °C;
• for 12 Vac versions use Class II transformers. To ensure compliance with the immunity standards (surge), the transformer must be one of the models specified (see the CAREL price list). For the 12 Vac/230 versions, as double insulation cannot be guaranteed between the power supply and the relay outputs, only use safety low voltage loads (up to 42 V effective rated value);
• ensure a space of at least 10 mm between the case and the nearby conductive parts;
• digital and analogue input connections less than 30 cm away; adopt suitable measures for separating the cables so as to ensure compliance with the immunity standards;
Secure the connection cables of the outputs so as to avoid contact with any low voltage parts.

Certifications for PGEZ only

Applications with flammable refrigerant gases:
IEC/EN UL 60535-2-24 (clauses 22.109, 22.110) - IEC/EN UL 60535-2-40 (clauses 22.116, 22.117) - IEC/EN UL 60535-2-49 (clauses 22.107, 22.108, 22.109) for R50, R52, R600, R600a, R-1234ze gases (IEC/EN UL 60079-15 (clauses 17 and 19, applicable to the relays according to their type. Acceptability should be always verified and judged in the final application).

FRE **Description: PIEZ* and PGEZ* (models S, C, M, Y, X)** constitute a complete range of electronic microprocessor-based controllers with display LED installed for the control of single refrigerant, vitreous and preheating refrigerants. The controllers PIEZ* and PGEZ* are supplied with standard. The controllers PGEZ* are specifically conceived for use in applications with refrigerants inflammables. Models displayed:
• PLO/QUEZ*, indicated for the control of single refrigerant vitreous, sans ventillateur sur l'évaporateur, fonctionnant à des températures supérieures à 0°C;
• PLO/QUEZ*, indicated for the control of single refrigerant vitreous à base temperature;
• PLO/QUEZ*, indicated for the control of single refrigerant vitreous, sans ventillateur, fonctionnant à base temperature;
• PLO/QUEZ*, solution pour mesurer la température.
Note: Mod. Y=relais connectés électriquement à l'intérieur entre eux; mod. X=relais indépendants.

Affichage et fonctions: Pendant le fonctionnement normal le contrôle affiche sur l'écran la valeur de la sonde réglée au paramètre H (=sonde air ambiant par défaut, +/-2 deuxième sonde, +/-3 troisième sonde). De plus si l'écran affiche les LED qui indiquent l'activation des fonctions de contrôle (voir Tab. 1), alors que les 3 touches permettent d'activer/désactiver certaines fonctions (voir Tab. 2).

LED et fonctions associées

icone	fonction	ON	fonctionnement normale	OFF	blank	start up
	compresseur	actifs	éteint	requis	ON	
	ventilateur	actifs	éteint	requis	ON	
	defrost	actifs	éteint	requis	ON	
	AUX	sortie active	sortie éteinte	requis	ON	
	alarme	tous	aucun alarme	requis	ON	
	horloge	RTC présent et activé, et une bande horaire est au moins 1 fois réglée	RTC absent ou désactivé, ou une bande horaire n'est au moins 1 fois réglée	ON si RTC présent	ON	

Tableau activation fonctions à l'aide des touches - mod. S, X, Y, C			
touche	fonctionnement normale	pression combinée	start up
	simple pression de la touche plus de 3 s : alterne phase ON/OFF	Appuyez ensemble cylindre/désactive cycle continu	-
	down defrost plus de 3 s : active/désactive defrost	Appuyez ensemble cylindre/désactive cycle continu	pendant 1 s affiche cod. vers. firmware
	set mute - 1 s : affiche/ permet de régler set point - plus de 3 s : accès au menu réglages paramètres (entrez mot de passe "22") - Entrez l'alarme acoustique (buzzer)	-	pour 1 s RESET buzzer EZY content

Tableau fonctions touches - variante mod. M		
touche	fonctionnement normale	start up
	sélection rapide sonde affichée	pendant 1 s affiche cod. vers. firmware

Réglages du set point (valeur de la température désirée)

- appuyer pendant 1 s sur SET, quelques instants après la valeur réglée s'affiche;
- augmenter ou diminuer cette valeur au moyen de UP ou DOWN;
- appuyer sur SET pour confirmer la nouvelle valeur.

Règles du set point (valore di temperatura desiderée)
appuyer sur 1 s. SET, quelques instants après le valeur réglée s'affiche;
augmenter ou diminuer cette valeur au moyen de UP ou DOWN;
appuyer sur SET pour confirmer la nouvelle valeur.
ON/OFF de l'instrument
appuyer pendant plus de 3 s. sur UP. Dans cette situation les algorithmes de régulation et defrost sont désactivés et l'instrument alterne l'affichage sur l'écran du message "OFF" et l'affichage de la température prégérée de la sonde.
Débrassage manuel (seulement pour mod. S, X, Y e C)
appuyer pendant plus de 3 s. sur DOWN (seulement si les conditions de température sont valides).
Cycle continu (seulement pour mod. S, X, Y e C)
appuyer en même temps pendant plus de 3 s. sur UP et DOWN.

Sélection rapide sonde affichée (seulement pour mod. M)
appuyer rapidement DOWN pour sélectionner la sonde à afficher temporairement.
Accès et modification paramètres type F (frequents) et type C (configuration)
1. Appuyer sur SET pendant 3 s (sur l'écran apparaît "PS");
2. pour accéder au menu paramètres de type F et entrer le mot de passe "22" en utilisant UP/DOWN;
3. pour accéder seulement au menu paramètres F appuyer sur SET (sans entrer le mot de passe);
4. naviguer à l'intérieur du menu paramètres utilisant UP/DOWN;
5. pour afficher/modifier les valeurs des paramètres affichés appuyer sur SET, ensuite sur UP/DOWN et enfin sur SET pour confirmer la modification (on retourne ainsi au menu des paramètres).
Pour sauvegarder définitivement tous les valeurs modifiées et sortir du menu paramètres appuyer sur SET pendant 3 s;
Pour sortir du menu sans sauvegarder les valeurs modifiées (sortie par time out) ne appuyer aucun bouton pendant au moins 60 s.

Normes di sicurezza

conforme alle Normative europee pertinenti. Precauzioni d'uso:
• i cavi dei collegamenti devono garantire l'isolamento fino a 90 °C;
• per le versioni 12 Vac utilizzare trasformatori Classe II. Per i modelli delle normative EN 61000-4-4, EN 61000-4-5, EN 61000-4-11, EN 61000-4-6, EN 61000-4-7, i trasformatori deve essere uno dei modelli indicati (vedi Lista Prezzi CAREL). Per le versioni 12 Vac/230, non essendo possibile garantire il doppio isolamento tra il connettore di alimentazione e le uscite relè, si raccomanda di utilizzare cavi schermati isolanti in bassissima tensione di sicurezza (fino a 42 V nominali di valore efficace);
• prevedere almeno 10 mm di distanza entre il contenitore e parti conduttive viventi;
• collegamenti degli ingressi digitali e analogici inferiori a 30 cm di distanza; adottare le adeguate misure di separazione dei cavi per il rispetto delle norme suddette.
Bloccare bene i cavi di connessione delle uscite per evitare contatti con le parti in bassissima tensione di sicurezza.

Certifications pour PGEZ uniquement

Applications avec gaz réfrigérants inflammables: CEI/EN UL 60535-2-24 (clauses 22.109, 22.110) - CEI/EN UL 60535-2-40 (clauses 22.116, 22.117) - CEI/EN UL 60535-2-49 (clauses 22.107, 22.108, 22.109) pour les gaz R50, R52, R600, R600a, R-1234ze (clauses 17 et 19, applicables aux relais en fonction de leur type. Acceptabilité doit toujours être vérifiée et jugée dans l'application finale).

GER **Beschreibung: PIEZ* und PGEZ* (Modelle S, C, M, Y, X)** umfasst eine Bandbreite elektronischer Mikroprozessor-Steuerungen mit LED-Anzeige für die Ansteuerung von Kälteanlagen, Kälteanlagen und Kälteanlagen. Die Regler sind mit Standard-Modulen ausgestattet. Die Regler PGEZ* sind speziell für Anwendungen mit brennbaren Kältemitteln entwickelt. Verfügbare Modelle:
• Die Mod. PLO/QUEZ*, angegeben für die Steuerung von Kälteanlagen mit Kältemitteln, die bei Betriebstemperaturen über 0°C;
• Die Modelle PLO/QUEZ*, angegeben für die Steuerung von Kälteanlagen mit Kältemitteln, die bei Basis-Temperatur;
• Die Modelle PLO/QUEZ*, angegeben für die Steuerung von Kälteanlagen mit Kältemitteln, die bei Basis-Temperatur;
• Die Modelle PLO/QUEZ*, angegeben für die Steuerung von Kälteanlagen mit Kältemitteln, die bei Basis-Temperatur;
NB: Mod. Y=elektronisch zusammengebaute Relais; Mod. X=unabhängige Relais.
Anzeige und Funktionen:
Während des Normalbetriebs zeigt das Display den Wert des in Parameter A eingestellten Fühlers an (=1 Default-Raumfühler, =2 zweiter Fühler, =3 dritter Fühler). Die Display-LEDs zeigen außerdem den Aktivierungsstatus der Funktionen an (siehe Tab. 1), während über die 3 Tasten einige Funktionen aktiviert/deaktiviert werden können (siehe Tab. 2).

LEDs und Funktionen

Pistage:	Verfichter	EN	Normalbetrieb	AUS	Blank	Start
	Verfichter	Eingeschaltet	Ausgeschaltet	Benötigt	EN	
	Ventilator	Eingeschaltet	Ausgeschaltet	Benötigt	EN	
	Abtauen	Eingeschaltet	Ausgeschaltet	Benötigt	EN	
	AUX	Conti eingeschaltet	Conti ausgeschaltet	Benötigt	EN	
	Alarm	Alle	Kein Alarm	Benötigt	EN	
	Uhr	RTC vorhanden und aktiviert, und es wurde mindestens 1 Zeitband eingestellt	RTC nicht vorhanden oder deaktiviert, oder es wurde kein Zeitband eingestellt	EN/Tab. RTC vorhanden	ON	

Tab. 1 Tabelle der Funktionsaktivierung über die Tasten - Modelle S, X, Y, C				
	Normalbetrieb	Kombinierter Tastendruck		Start
	PIR länger als 3 Sek.: abschneidet Anzeige des EN AUS/Entfernen	Zusammen gedrückt wird der Code des Dauerebetriebs aktiviert (daubetrieb)		Für 1 Sek. wird der Code der Firmware-Version eingeblendet
	PIR länger als 3 Sek.: aktiviert/deaktiviert die Abtauen	Zusammen gedrückt wird der Code des Dauerebetriebs aktiviert (daubetrieb)		Für 1 Sek. wird der Code der Firmware-Version eingeblendet
	Setze menü 1 Sek.: Anzeige/Einstellung des Sollwertes Für länger als 3 Sek.: Zugriff auf das Menü der Parameter-Einstellung (Passwort "22" eingeben) Stellt absolute/min. Temperatur ab			Für 1 Sek. wird der Code der Firmware-Version eingeblendet Zusammen gedrückt wird der Code des Dauerebetriebs aktiviert (daubetrieb)

Tab. 2

Tastenfunktionen - Variante Modell M		
Taste	Normalbetrieb	Start
	Schnellwahl des anzuzeigenden Fühlers	Zusammen mit "set" gedrückt wird das Parameter-TEMPER-Verfahren aktiviert
	Schnellwahl des anzuzeigenden Fühlers	Für 1 Sek. wird der Code der Firmware-Version eingeblendet

Einstellung des Sollwertes (gewünschte Temperatur)

- Für 1 Sekunde SET drücken, der eingestellte Wert beginnt kurz darauf zu blinken;
- Den Wert mit UP oder DOWN erhöhen oder vermindern;
- SET drücken, um den neuen Wert zu bestätigen.

Ein/Aus des Gerätes: UP für länger als 3 Sekunden drücken. Unter dieser Bedingung sind die Regelalgorithmen und Alarmschaltungen, und das Gerät zwingt-aber die Meldung "OH" und den Fühlerparameterreset an.

Manuelle Abtastung (nur für Modelle S, X, Y und X)

Drücken Sie für ca. 3 Sekunden DOWN (drücken Sie die Taste Temperaturbedingung aktiviert).

Dauerbetrieb (nur für Modelle S, X, Y und X)

Einstellung des Sollwertes (gewünschte Temperatur)
• für 1 Sekunden SET drücken, der eingestellte Wert beginnt kurz zu blinken;
• den Wert mit UP oder DOWN erhöhen oder vermindern;
• SET drücken, um den neuen Wert zu bestätigen.
Ein/AUS des Gerätes: UP für länger als 3 Sekunden drücken. Unter dieser Bedingung sind die Regelungsalgorithmen und Abtauen deaktiviert, und das Gerät zeigt abwechselnd die Meldung "OFF" und den Fühler-Temperaturwert an.
Manuelle Abtauen (nur für Modelle S, X, Y und C)
appuyer pendant plus de 3 s. sur DOWN (seulement si les conditions de température sont valides).
Dauerbetrieb (nur für Modelle S, X, Y und C)
Clicchez UP et DOWN for 3 s.
Schnellwahl des anzuzeigenden Fühlers (nur für Modell M)
DOWN kurz drücken, um den vorabgewählten anzuzeigenden Fühler zu wählen.
Zugriff und Änderung der Parameter F (häufige Parameter) und C (Konfigurationsparameter)
1. SET für 3 Sekunden drücken (auf dem Display erscheint "PS");
2. für den Zugriff auf das Menü der Parameter F und C die Passwort "22" mit DOWN eingeben;
3. für den Zugriff nur auf das Menü der Parameter F SET drücken (ohne Passwort);
4. das Parameterelement kann mit UP/DOWN abgerufen werden;
5. für eine Anzeige/Änderung der Parameterwerte SET, dann UP/DOWN und schließlich SET zur Bestätigung der Änderung drücken (es erfolgt ein Rückkehr zum Menü der Parameter).
Zur endgültigen Speicherung aller geänderten Werte (Verlassen wegen Time-out) für mindestens 60 Sek. keine Taste drücken.

Sicherheitsvorschriften

Überschreitung mit den einschlägigen europäischen Vorschriften. Vorsichtsmaßnahmen bei der Installation:
• die Anschlüsse müssen bis zu 90 °C isoliert sein;
• für die 12 Vac-Versionen Typs Klasse II verwenden. Zur Einhaltung der Vorschriften EN 61000-4-4, EN 61000-4-5, EN 61000-4-11, EN 61000-4-6, EN 61000-4-7, die Transformatoren müssen eines der Modelle angegeben (siehe Liste der Preise CAREL). Für die 12 Vac/230 Versionen, da eine doppelte Isolierung zwischen dem Versorgungsnetz und den Leistungsanschlüssen nicht garantiert werden kann, ist die Verwendung von Sicherheitskabeln erforderlich (bis zu 42 V effektive Nennspannung).
• die Anschlüsse der digitalen und analogen Eingänge müssen weniger als 30 cm Abstand aufweisen; die Kabel sind zur Einhaltung der entsprechenden Vorschriften anzuschließen zu trennen.
Die Anschlüsse der Eingänge gut befestigen, um Kontakte mit Niederspannungsleitungen zu vermeiden.

Zertifizierungen für PGEZ

Anwendungen mit brennbaren Kältemitteln: IEC/EN UL 60535-2-24 (Abschnitte 22.109, 22.110) - IEC/EN UL 60535-2-40 (Abschnitte 22.116, 22.117) - IEC/EN UL 60535-2-49 (Abschnitte 22.107, 22.108, 22.109) für Gas R50, R52, R600, R600a, R-1234ze (IEC/EN UL 60079-15 (Abschnitte 17 und 19) für die Relais entsprechend ihrem Typ. Die Akzeptanz sollte im endgültigen Antrag immer überprüft und beurteilt werden).

SPA **Description: PIEZ* and PGEZ* (models S, C, M, Y, X)** represent a range of electronic microprocessor-based controllers with LED readouts for the control of single refrigerant, vitreous and preheating refrigerants. The PIEZ* and PGEZ* are supplied with standard. The controllers PGEZ* are specifically conceived for use in applications with refrigerants inflammables. Models displayed:
• PLO/QUEZ*, indicated for the control of single refrigerant vitreous, sans ventillateur sur l'évaporateur, fonctionnant à des températures supérieures à 0°C;
• PLO/QUEZ*, indicated for the control of single refrigerant vitreous à base temperature;
• PLO/QUEZ*, indicated for the control of single refrigerant vitreous, sans ventillateur, fonctionnant à base temperature;
• PLO/QUEZ*, solution pour mesurer la température.
Note: Mod. Y=relais connectés électriquement à l'intérieur entre eux; mod. X=relais indépendants.

Visualizzazioni e funzioni

Durante il funzionamento, il controllore mostra a display il valore della sonda impostata con il par. H (+/-) sonda ambiente predefinita, +/-2 seconda sonda, +/-3 terza sonda. Además, en el display aparecen los LED que indican la activación de las funciones del control (ver Tab. 1), mientras que las 3 teclas permiten activar/desactivar algunas funciones (ver Tab. 2).

LED y funciones asociadas

icono	funcion	ON	funcionamiento normal	OFF	parpadeo	arranque
	compresor	encendido	apagado	requerido	ON	
	ventilador	encendido	apagado	requerido	ON	
	descongelación	encendido	apagado	requerido	ON	
	AUX	salida encendida	salida apagada	requerido	ON	
	alarma	todos	ninguna alarma	requerido	ON	
	relógio	RTC presente e habilitado, e se há a hora definida no menu de parâmetros	RTC assente o desabilitado, ou se há a hora definida no menu de parâmetros	ON se RTC presente	ON	

Tabla de activación de funciones por medio de las teclas - mod. S, X, Y, C			
tecla	funcionamiento normal	presión combinada	arranque
	más de 3 s. alterna estado ON/OFF	Pulsados juntos: activo/desactivo ciclo continuo	Pulsados juntos: durante 1 s muestra código de versión firmware
	más de 3 s. activa/desactiva descongelo	Pulsados juntos: activo/desactivo ciclo continuo	Pulsados juntos: durante 1 s muestra código de versión firmware
	1 s.: muestra/permite ajustar el punto de consigna más de 3 s. acceso al menú de ajuste de parámetros (ingresar contraseña "22") 1-tada alarma acústica (buzzer)	-	pendiente 1 s. muestra código de versión firmware pendiente 1 s. RESET buzzer EZY contenido

Tabla de funciones de teclas - variante mod. M			
tecla	funcionamiento normal	arranque	
	selección rápida de sonda visualizada	Presionando la vez que "set" activa el procedimiento de RESETEO de parámetros.	durante 1 s muestra cód. vers. firmware

Ajustes del punto de consigna (valor de temperatura deseado)

popular durante 1 s "SET", después de unos instantes el valor ajustado parpadeará, aumentar o disminuir dicho valor con las flechas ARRIBA o ABAJO; pulsar SET otra vez confirmará el nuevo valor.

Ajustes del punto de consigna (valor de temperatura deseado)
pulsar durante 1 s. SET, después de unos instantes el valor ajustado parpadeará;
• aumentar o disminuir dicho valor con las teclas ARRIBA o ABAJO;
• pulsar SET para confirmar el nuevo valor.
ON/OFF del instrumento: Pulsar durante más de 3 s. ARRIBA. En esta condición los algoritmos de regulación y descongelación se deshabilitan y el instrumento alterna la visualización en el display del mensaje "OFF" y la de la temperatura de la sonda ajustada.
Descongelación manual (solo para mod. S, X, Y y C)
Pulsar durante más de 3 s. ABAJO (solo si se cumplen las condiciones de temperatura).
Ciclo continuo (solo para mod. S, X, Y y C)
Pulsar simultáneamente durante más de 3 s. ARRIBA y ABAJO.
Selección rápida de sonda visualizada (solo para mod. M)
Pulsar rápidamente la tecla ABAJO para seleccionar la sonda a visualizar temporalmente.

Acceso y modificación de parámetros tipo F (frecuentes) y tipo C (configuración)
1. Pulsar SET durante 3 s (en el display aparece "PS");
2. Para acceder al menú de los parámetros de tipo F e C introducir la contraseña "22" con ARRIBA/ABAJO;
3. Para acceder solo al menú de los parámetros F pulsar SET (sin introducir contraseña);
4. Para visualizar/modificar los valores de los parámetros visualizados pulsar SET, luego ARRIBA/ABAJO y finalmente SET para confirmar la modificación (se va al menú de los parámetros).
Para guardar definitivamente todos los valores modificados y salir del menú de los parámetros pulsar SET durante 3 s. Para salir del menú sin guardar los valores modificados (salida por agotamiento de tiempo) no pulsar ninguna tecla durante al menos 60 s.

Normativas de seguridad

Conforme a las Normativas europeas de la materia. Precauciones de instalación:
• Los cables de conexión deben garantizar el aislamiento hasta a 90 °C;
• Para las versiones de 12 Vac utilizar transformadores de Clase II. Para respetar las normativas EN 61000-4-4, EN 61000-4-5, EN 61000-4-11, EN 61000-4-6, EN 61000-4-7, el transformador debe ser uno de los modelos indicados (ver Lista de Precios de CAREL). Para las versiones 12 Vac/230, no siendo posible garantizar el aislamiento doble entre el conector de alimentación y las salidas relé, se aconseja utilizar cables con aislamiento saliente con una baja tensión de seguridad (hasta 42 V nominales de valor eficaz);
• Prever al menos 10 mm de distancia entre el contenedor y las partes conductoras vivientes;
• Conexiones de las entradas digitales y analógicas inferiores a 30 cm de distancia; adoptar las medidas adecuadas de separ

TEMPERATURE - PRESSURE CHART

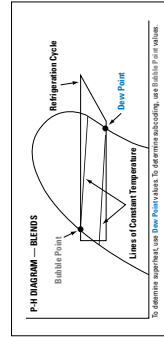


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TEMP.	REFRIGERANT TYPE (SAFETY CLASS)						
	REFRIGERANT (SPORLAN LETTER CODE)						
	HC (A3)	HC (A2)	HC (A2L)	HC (A3)	HC (A3)	AMMONIA (B2L)	CO2 (A1)
°C	170(K)	290(0)	441A	600a(U)	717(A)		744
10 -12.2	239.7	31.8	5.8	0.5	23.8		345.7
11 -11.7	243.5	32.7	6.3	0.0	24.7		351.5
12 -11.1	247.2	33.6	6.8	0.4	25.6		357.4
13 -10.6	251.1	34.5	7.2	0.7	26.5		363.4
14 -10.0	254.9	35.4	7.7	1.0	27.5		369.5
15 -9.4	258.8	36.3	8.2	1.4	28.4		375.6
16 -8.9	262.7	37.2	8.7	1.7	29.4		381.8
17 -8.3	266.7	38.2	9.2	2.1	30.4		388.0
18 -7.8	270.7	39.2	9.7	2.4	31.4		394.3
19 -7.2	274.8	40.1	10.3	2.8	32.4		400.7
20 -6.7	278.9	41.1	10.8	3.2	33.5		407.2
21 -6.1	283.0	42.1	11.3	3.5	34.6		413.8
22 -5.6	287.2	43.2	11.9	3.9	35.7		420.4
23 -5.0	291.4	44.2	12.5	4.3	36.8		427.1
24 -4.4	295.7	45.2	13.0	4.7	37.9		433.8
25 -3.9	300.0	46.3	13.6	5.1	39.0		440.7
26 -3.3	304.4	47.4	14.2	5.5	40.2		447.6
27 -2.8	308.8	48.5	14.8	5.9	41.4		454.6
28 -2.2	313.2	49.6	15.4	6.3	42.6		461.7
29 -1.7	317.7	50.7	16.0	6.8	43.8		468.8
30 -1.1	322.3	51.8	16.6	7.3	45.0		476.1
31 -0.6	326.8	53.0	17.3	7.6	46.3		483.4
32 0.0	331.5	54.1	17.9	8.1	47.6		490.8
33 0.6	336.1	55.3	18.6	8.5	48.9		498.3
34 1.1	340.9	56.5	19.2	9.0	50.2		505.8
35 1.7	345.6	57.7	19.9	9.4	51.6		513.4
36 2.2	350.4	58.9	20.6	9.9	52.9		521.2
37 2.8	355.3	60.1	21.3	10.4	54.3		529.0
38 3.3	360.2	61.4	22.0	10.9	55.7		536.9
39 3.9	365.2	62.7	22.7	11.4	57.2		544.8
40 4.4	370.2	63.9	23.4	11.9	58.6		552.9
41 5.0	375.2	65.2	24.2	12.4	60.1		561.0
42 5.6	380.3	66.6	24.9	12.9	61.6		569.3
43 6.1	385.5	67.9	25.7	13.4	63.1		577.6
44 6.7	390.7	69.2	26.4	14.0	64.7		586.0
45 7.2	395.9	70.6	27.2	14.5	66.3		594.5
46 7.8	401.2	72.0	28.0	15.0	67.9		603.1
48 8.9	412.0	74.8	29.6	16.2	71.1		620.5
50 10.0	422.9	77.6	31.3	17.3	74.5		638.3
52 11.1	434.1	80.6	32.7	18.5	78.0		665.5
54 12.2	445.5	83.6	34.2	19.7	81.6		675.0
55 12.8	451.2	85.1	35.0	20.3	83.4		684.5
56 13.3	457.1	86.7	35.7	20.9	85.2		694.0
58 14.4	468.9	89.8	37.3	22.2	88.0		713.3

To determine Subcooling for 400-Series blends, use Bubble Point in Gray.
To determine Superheat for 400-Series blends, use Dew Point in Blue.

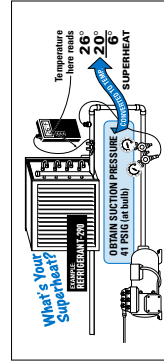
Pressure, psig (pounds per square inch gauge), BOLD
Vacuum, inhg (inches of Mercury), *Italics*



USE THIS QR CODE
TO DOWNLOAD
CHIL MASTER P-T APP



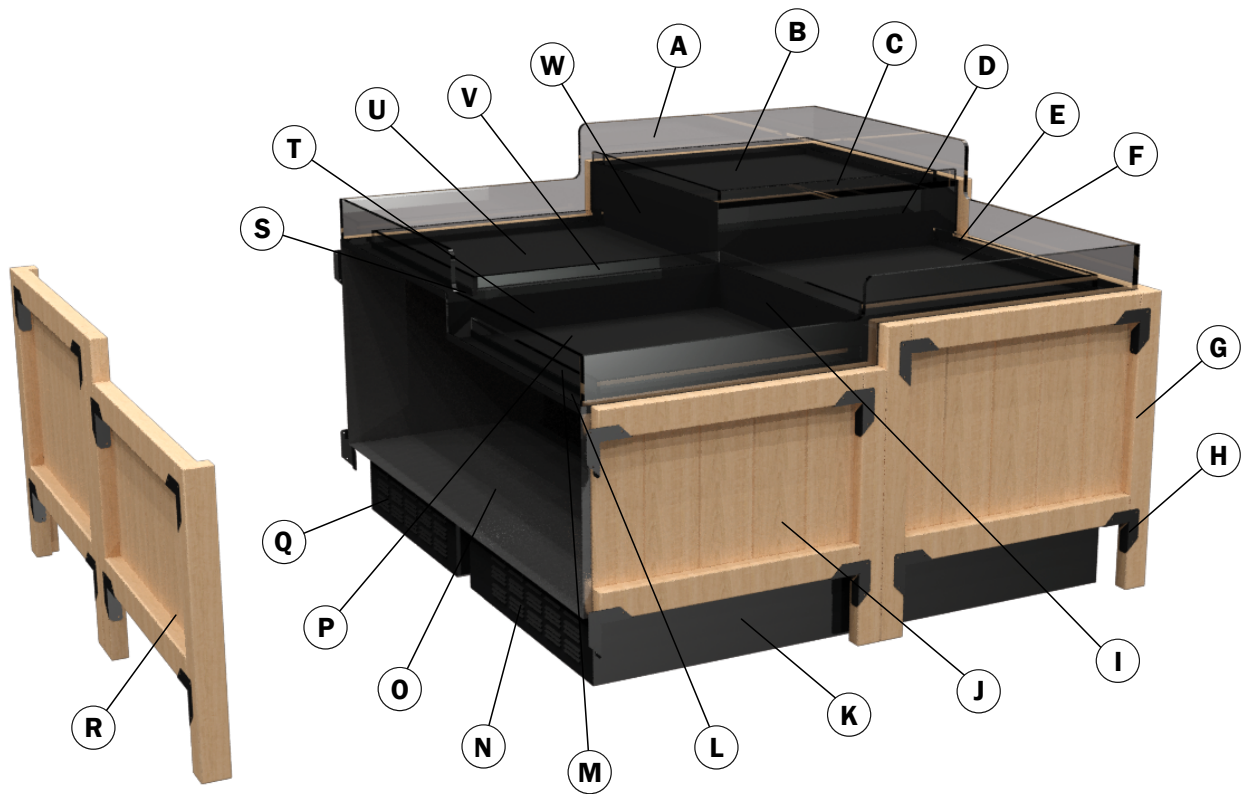
P.T. data generated by MUST Reformer



*Exceeds critical temperature



D1: PARTS LIST



A	Plex
B	Top Deck and Air Discharge Perforations
C	Product Stop (Top Deck)
D	Air Discharge (Mid Deck)
E	Product Stop (Mid Deck)
F	Mid Deck and Air Discharge Perforations
G	Leg Detail (Optional)
H	Bracket Detail (Optional)
I	Air Discharge (Lower Deck)
J	Wood Cladding (Optional)
K	Compressor Compartment Lower Panel
L	Air Return (Lower Deck)
M	Product Stop (Lower Deck)
N	Condenser Air Intake
O	Compressor Compartment
P	Lower Deck and Air Discharge Perforations
Q	Condenser Air Exhaust
R	Compressor Compartment Access Panel
S	Air Return (Mid Deck)
T	Air Discharge (Lower Deck)
U	Mid Deck and Air Discharge Perforations
V	Product Stop (Mid Deck)
W	Air Discharge (Mid Deck)



Hill PHOENIX, Inc.
Hereinafter Referred To As Manufacturer

LIMITED WARRANTY

GENERAL WARRANTY

Manufacturer's products are warranted to be free from defects in materials and workmanship under normal use and maintenance for fourteen months from date of shipment from manufacturer (the "Base Warranty Period"). In the event of a qualifying warranty claim, a new or rebuilt part to replace any defective part will be provided without charge. The replacement part is covered under this warranty for the remainder of the applicable Base Warranty Period. In order to be eligible for warranty coverage, customer must: (i) notify Manufacturer promptly upon discovery of a warrant defect, and (ii) comply with the warranty claim procedures provided by Manufacturer from time to time.

This equipment warranty does not include labor or other costs incurred for diagnosing, repairing, removing, installing, shipping, servicing, or handling of either defective parts or replacement parts.

The warranty shall not apply:

1. To any unit or any part thereof which has been subject to accident, alteration, negligence, misuse or abuse, or which has not been operated in accordance with the manufacturer's recommendations, or in conditions outside of Manufacturer's specifications, or if the serial number of the unit has been altered, defaced, or removed.
2. When the unit, or any part thereof, is damaged by fire, flood, or other act of God.
3. To products that are impaired or damaged due to improper installation.
4. When installation and startup forms are not properly completed or returned within two weeks after startup.
5. If the defective part is not returned to the Manufacturer.
6. To service, maintenance or wear and tear parts (such as lights, starters and ballasts)

MODIFICATIONS TO GENERAL WARRANTY

The following sets forth certain modifications to the General Warranty for specific products of Manufacturer:

DISPLAY CASE AND SPECIALTY PRODUCTS CLEARVOYANT® LED LIGHTING

The warranty period for Clearvoyant LED lighting components within the Clearvoyant lighting system is five years from date of shipment.

REMEDY LIMITATION/DAMAGES EXCLUSION

THE REMEDY OF REPAIR OR PROVISION OF A REPLACEMENT PART WITHOUT CHARGE SHALL BE THE EXCLUSIVE REMEDY FOR ANY WARRANTY CLAIM HEREUNDER. WITHOUT LIMITING THE FOREGOING, MANUFACTURER SHALL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR INCIDENTAL, INDIRECT OR CONSEQUENTIAL DAMAGES, INCLUDING LOSS OF PROFIT, LABOR COST, LOSS OF REFRIGERANT OR FOOD PRODUCTS.

EXCLUSIVE WARRANTY

THE FOREGOING WARRANTY IS THE EXCLUSIVE WARRANTY WITH RESPECT TO THE PRODUCTS. ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, THE WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED AND EXCLUDED. NO IMPLIED WARRANTY SHALL BE DEEMED CREATED BY COURSE OF DEALING OR USAGE OF TRADE. NO OTHER PERSON IS AUTHORIZED TO EXPAND OR CREATE ANY OBLIGATION GREATER THAN OR MORE EXPANSIVE THAN THE WARRANTY PROVIDED HEREIN.

Submit warranty claims to:

Hillphoenix Refrigeration & Power

Systems Division

2016 Gees Mill Road

Conyers, GA 30013

Warranty / Service

Phone: 1-833-280-5714

Hillphoenix Display Case Division

1925 Ruffin Mill Road

Colonial Heights, VA 23834

Warranty / Service

Phone: 1-833-280-5714

Hillphoenix Specialty Products Division

703 Franklin Street

Keosauqua, IA 52565

Warranty / Service

Phone: 1-833-280-5714

Warning

Maintenance & Case Care

When cleaning cases the following must be performed PRIOR to cleaning:

To avoid electrical shock, be sure all electric power is turned off before cleaning. In some installations, more than one switch may have to be turned off to completely de-energize the case.

Do not spray cleaning solution or water directly on fan motors or any electrical connections.

All lighting receptacles must be dried off prior to insertion and re-energizing the lighting circuit.

Please refer to the Use and Maintenance section of this installation manual.

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