HUSSMANN®

DOE 2017
Energy Efficiency
Compliant

GSVM

Medium Temperature
Self Contained
Open Vertical Merchandisers

Installation & Operation Manual

IMPORTANT
Keep in store for future reference!

MANUAL - IO SC GSVM

P/N 0545716_E
September 2017

Spanish 0545717
French 0545718

ATTENTION

Merchandiser must operate for 24 hours before loading product!

Regularly check merchandiser temperatures.

Do not break the cold chain. Keep products in cooler before loading into merchandiser.

These merchandisers are designed for pre-chilled products only.

IMPORTANT
KEEP IN STORE FOR FUTURE REFERENCE
Quality that sets industry standards!

12999 St. Charles Rock Road • Bridgeton, MO 63044-2483
U.S. & Canada 1-800-922-1919 • Mexico 01 800-890-2900
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APPENDIX

WARRANTY

REVISION HISTORY

Revision E

1. Page 1-4 updated controller info and replaced images
2. Page 2-3 to 2-7 updated controller info
3. Page 2-8 On case section view changed Sensor Colors Yellow to Orange and Black to Green
replaced pictures
4. Page 3-2Remove word knob (see pdf attached)
5. Page A-1
-Remove selected components (see pdf attached) and add the listed components on the Parts to add.xlsx file attached
6. Page A-7 to A-9 Replace wiring diagrams

Revision D

1. 2017 DOE Compliant Page 1
2. 2-1 Add note: For USA/Canada, a HI-Humidity Condensate Pan Kit is provided with GSVM-4060.
A separate dedicated circuit is required. 120V, 15 Amp circuit and a NEMA 5-15R receptacle. NOTE: This extra circuit is for the Hi-Humidity condensate pan kit only.
3. 2-2 Updated Pan Information
4. A-2 On the Condensate Pan section: -Replace part number 1601835 with 0538249, remove optional from the description.
-Add to the description of these components 29254, 29253, 19s678: (Not for USA/CANADA) A-5. Update GSVM-5272
5. AHRI Total Display Area Update
6. GSVM-4060 diagram

Revision C corrected table and dimensions on Page A-3

Revision B Changed Shipping Weights, A-5

REVISION A CHANGED PART NUMBER FROM 0515275 TO 0545716

REVISION H — Added New Replacement Parts A-1 and A-2; Updated Wiring Diagrams Section A; Removed all reference to Remote Models throughout; updated model number; moved DOE sticker

REVISION October 2013 — Added Checklists Page 1-7; Added Warning Page 1-3; Cleaning Coils 4-4; Maintaining Fluorescent Lights 4-4. Checklist 4-5

REVISION F — JULY 2013

1. Included Night Curtain Instructions, Page 1-5 and 1-6
2. Added Night Curtain Description, Page 5-5

REVISION E — FEBRUARY 2012

1. Revised Nema Plug, Page 2-1

REVISION D — JANUARY 2012

1. Revised for Wind Chill

REVISION C — JANUARY 2012

1. Removed Remote Models
2. Added Safe-NET III
3. Revised Wiring Diagrams

REVISION B — DECEMBER 2010

1. Added option condensate pan for GSVM 4072 and 5272; Page, 2-2
2. Replaced Bulb illustration; Page 5-2
3. Updated wiring diagram; Page A-11

ORIGINAL ISSUE — NOVEMBER 2010

* *

ANSI Z535.5 DEFINITIONS

• **DANGER –** Indicate[s] a hazardous situation which, if not avoided, will result in death or serious injury.

• **WARNING –** Indicate[s] a hazardous situation which, if not avoided, could result in death or serious injury.

• **CAUTION –** Indicate[s] a hazardous situation which, if not avoided, could result in minor or moderate injury.

• **NOTICE –** *Not related to personal injury –* Indicates[s] situations, which if not avoided, could result in damage to equipment.

INSTALLATION

UL LISTING

These merchandisers are manufactured to meet ANSI/ UL 471 standard requirements for safety. Proper installation is required to maintain the listing.

FEDERAL / STATE REGULATION

These merchandisers at the time they are manufactured, meet all federal and state/ provincial regulations. Proper installation is required to ensure these standards are maintained. Near the serial plate, each merchandiser carries a label identifying the environment for which the merchandiser was designed for use. A Type II fan speed control kit is required for each merchandiser to operate at Type II conditions.

ANSI/NSF-7 Type I – Display Refrigerator / Freezer
Intended for 75°F (24°C) / 55%RH Ambient Application

ANSI/NSF-7 Type II – Display Refrigerator / Freezer
Intended for 80°F / 55%RH Ambient Application

ANSI/NSF-7 – Display Refrigerator
Intended for Bulk Produce

HUSSMANN PRODUCT CONTROL

The serial number and shipping date of all equipment is recorded in Hussmann's files for warranty and replacement part purposes. All correspondence pertaining to warranty or parts ordering must include the serial number of each piece of equipment involved. This is to ensure the customer is provided with the correct parts.

SHIPPING DAMAGE

All equipment should be thoroughly examined for shipping damage before and during unloading. This equipment has been carefully inspected at our factory. Any claim for loss or damage must be made to the carrier. The carrier will provide any necessary inspection reports and/or claim forms.

Apparent Loss or Damage

If there is an obvious loss or damage, it must be noted on the freight bill or express receipt and signed by the carrier's agent; otherwise, carrier may refuse claim.

Concealed Loss or Damage

When loss or damage is not apparent until after equipment is uncrated, retain all packing materials and submit a written response to the carrier for inspection within 15 days.

LOCATION

These merchandisers are designed for displaying products in air conditioned stores where temperature is maintained at or below the ANSI / NSF-7 specified level and relative humidity is maintained at or below 55%.

Recommended operating ambient temperature is between 65°F (18°C) to 80°F (26.6°C). Maximum relative humidity is 55%.

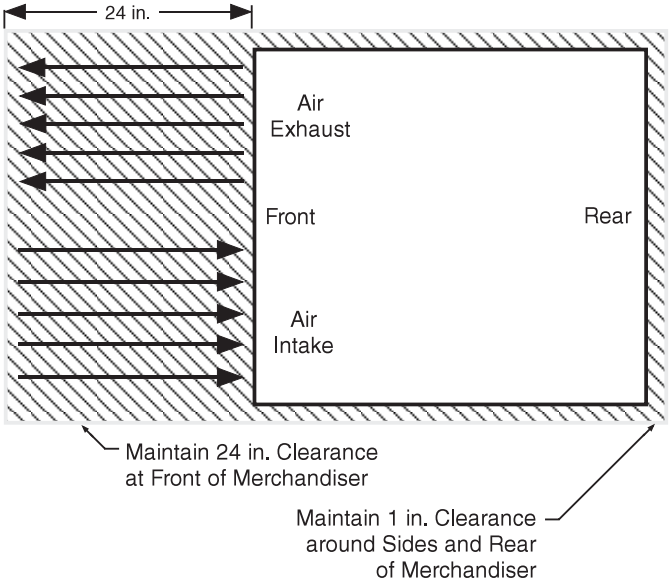
Placing refrigerated merchandisers in direct sunlight, near hot tables or near other heat sources could impair their efficiency. Like other merchandisers, these merchandisers are sensitive to air disturbances. Air currents passing around merchandisers will seriously impair their operation. Do NOT allow air conditioning, electric fans, open doors or windows, etc. to create air currents around the merchandiser.

SELF CONTAINED (LOCATION)

GSVM-4060 and GSVM-4072 (at 75°F/55% relative humidity, maximum ambient conditions) has front condenser air intake and discharge. Maintain a minimum clearance distance of two feet in front of the merchandiser so that air discharge and air intake is not obstructed.

GSVM-4072 (at 80°F/55% relative humidity, maximum ambient conditions) and **GSVM-5272** each require a 5 inch minimum clearance behind the merchandiser and clearance above the merchandiser since its air flows straight through the condensing unit compartment. Brackets are provided for field attachment to obtain this rear 5 inch minimum clearance.

GSVM-4060
GSVM 4072 at 75°F/55% RH Maximum Ambient Conditions



For California Businesses:

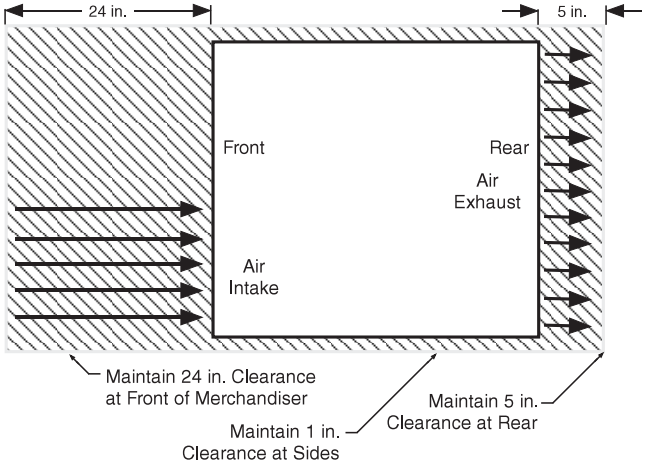
⚠ WARNING

This product may contain chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

This warning is the result of the California State law known as the California Safe Drinking Water and Toxic Enforcement Act of 1986, which is commonly referred to as “Proposition 65.”

This warning does not mean that Hussmann products will cause cancer or reproductive harm, or is in violation of any product-safety standards or requirements. As clarified by the California State government, Proposition 65 can be considered more of a ‘right to know’ law than a pure product safety law. When used as designed, Hussmann believes that our products are not harmful. We provide the Proposition 65 warning to stay in compliance with California State law. It is your responsibility to provide accurate Proposition 65 warning labels to your customers when necessary. For more information on Proposition 65, please visit the California State government website.

GSVM-5272
GSVM-4072 at 80°F/55% RH Maximum Ambient Conditions



MODEL DESCRIPTION

The GSVM open vertical merchandiser offers versatility in the display of medium temperature (32º F to 41º F) products such as dairy products, prepared salads, pizza and fresh entrees that are pre-chilled in a cooler. Carefully read and follow the instructions prior operating the merchandiser.

UNLOADING

Unloading from Trailer:
Lever Bar (also known as a Mule, Johnson Bar, J-bar, Lever Dolly, or Pry Lever)

Move the merchandiser as close as possible to its permanent location and remove all packaging. Check for damage before discarding packaging. Remove all separately packed accessories such as kits and shelves. Improper handling may cause damage to the merchandiser when unloading to avoid damage:

⚠ CAUTION

Do not walk or put heavy objects on case.

1. Do not drag the merchandiser out of the trailer. Use a Johnson bar (mule).
2. Use a forklift or dolly to remove the merchandiser from the trailer.

EXTERIOR LOADING

Do NOT walk on top of merchandisers or damage to the merchandisers and serious personal injury could occur.

MERCHANDISERS ARE NOT STRUCTURALLY DESIGNED TO SUPPORT EXTERNAL LOADING such as the weight of a person. Do not place heavy objects on the merchandiser.

SHIPPING SKID

Each merchandiser is shipped on a skid to protect the merchandiser's base, and to make positioning the case easier.

Do not remove the shipping skid until the merchandiser is near its final location. The skid provides protection for both the merchandiser and the floor.

Remove the skid by raising one end of the merchandiser approximately 6 inches. Block the merchandiser securely, and remove the two skid bolts from the raised end. Replace the bolts with (provided) leg levelers. Repeat this procedure at opposing end. Once the leg levelers are secured in place, the merchandiser may be slid off the skid and placed in its final location.

DO NOT TILT MERCHANDISER ON ITS SIDE OR END WHEN REMOVING SKID.

Once the skid is removed, the merchandiser must be lifted —NOT PUSHED— to reposition.

Check floor where merchandisers are to be set to see if it is a level area. Determine the highest part of the floor.

⚠ WARNING

Do NOT remove shipping crate until the merchandiser is positioned for installation.

⚠ WARNING

Do NOT stand or walk on top of merchandiser. Do not store items or flammable materials atop the unit.

MERCHANDISER LEVELING

BE SURE TO POSITION MERCHANDISERS PROPERLY. Level the merchandiser by all four corners. Merchandiser(s) must be installed level to ensure proper operation of the refrigeration system, and to ensure proper drainage of defrost water.

OPTIONAL LEGS

NSF® approved legs replace the leg levelers if required by local health codes. The legs raise the case 6 inches for cleaning purposes. An optional skirt kit can be provided to snap on the legs.

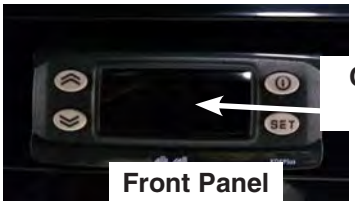
SERIAL PLATE LOCATION

The serial plate is located on the interior top, left side of the merchandiser. It contains all pertinent information such as model, serial number, amperage rating, refrigerant type and charge. This information will be needed to install, service or order parts for the merchandiser.

REFRIGERATION UNIT ACCESS

The lower front panel may be removed by removing screw at bottom and lifting the panel straight upward and over the tabs on which it is hanging. The panel is installed by reversing the above procedure.

Ensure lower front panel is flat against the floor when installed to prevent air circulation problems for self contained merchandisers.



Display is mounted on left side of access panel. Be careful not to detach cable from display when removing access panel.

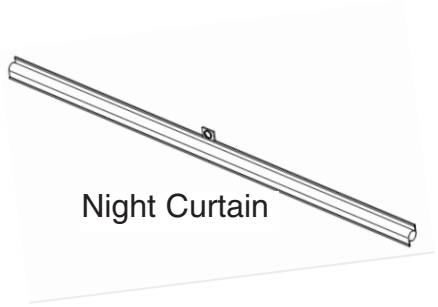
SEALING MERCHANDISER TO FLOOR

If required by local sanitary codes, or if the customer desires, merchandisers may be sealed to the floor using a vinyl cove base trim. The size needed will depend on how much variation there is in the floor, from one end of the merchandiser to the other. Sealing of the lower front and rear panels on self contained models may hamper their removal for servicing or maintenance of the condensing unit.

NOTE: Do not allow trim to cover any intake or discharge grilles located in the lower front panel.

NIGHT CURTAIN INSTALLATION

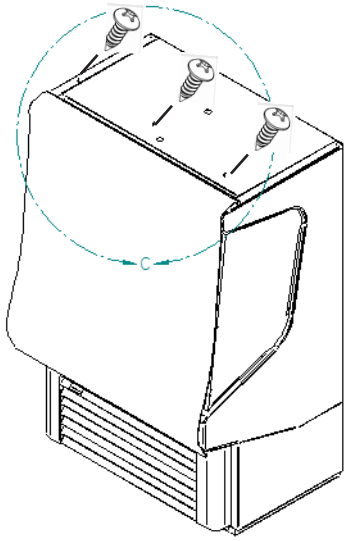
Night curtains are used to cover the case opening after normal business hours. The curtains improve energy consumption, allowing the refrigeration system to work less.



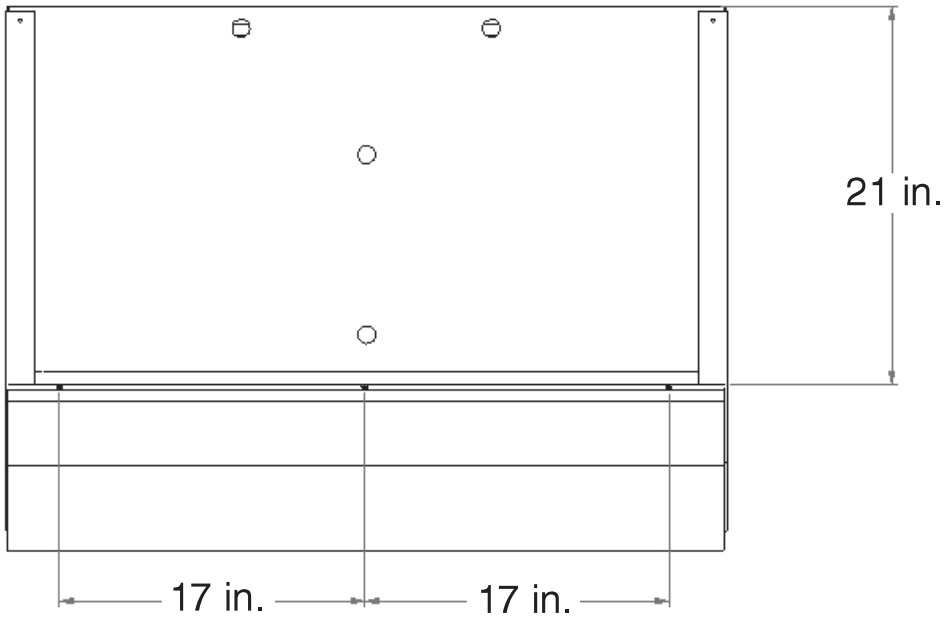
Carefully inspect the night curtain kit to ensure there is no damage from breakage during shipping. Case should be positioned and leveled before installing the night curtain.

Position night curtain on top panel. Measure 21 inches to edge of the end night curtain. Center night curtain to length of case.

Fasten night curtain to top panel using (3) #8 x 1/2 in. screws.

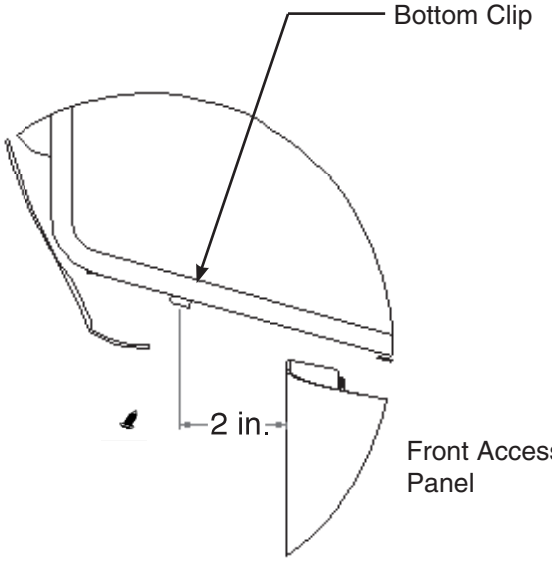


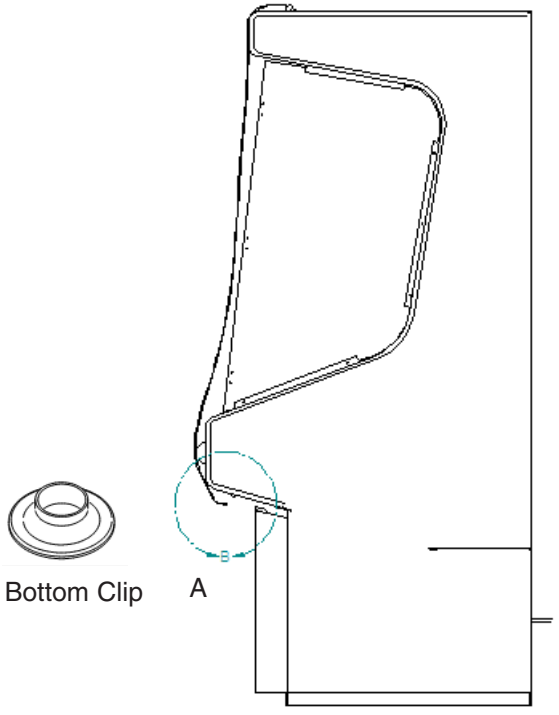
The night curtain for GSVM is standard for model 5272 and is an optional kit for models 4060 and 4072.



Secure bottom of night curtain using bottom clip as shown below. Clip is to be installed 2 inches in front access panel.


Night Curtain Installed





Hussmann Self-Contained Refrigeration Equipment Start Up Check List

Please note that failure to follow this start-up document may void your factory warranty

Step	Startup Activity	Check
1	Locate, read and maintain install/operation manual in a safe place for future reference.	☐
2	Examine unit. Confirm there is NO damage or concealed damage.	☐
3	Level the unit, side to side and front to rear.	☐
4	Remove all shipping brackets/compressor straps/bolts etc.	☐
5	Unit must be run on a dedicated electrical circuit without the use of an extension cord.	☐
6	Ensure that the proper electrical requirements for the equipment are supplied.	☐
7	Verify field electrical connections are tight.	☐
8	Verify all electrical wiring is secured and clear of any sharp edges or hot lines.	☐
9	Verify the condensate drain line is properly trapped and pitched.	☐
10	Verify all required clearances on the sides and back of unit.	☐
11	Verify there are no air disturbances external to the unit. Heat and air registers, fans, and doors etc.	☐
Advise owner/operator that merchandiser must operate at temperature for 24 hrs prior to loading with product.		

Form HSCW01 Rev. 30MAY12 P/N 0525209_B

NOTE:

ELECTRICAL / REFRIGERATION

MERCHANDISER ELECTRICAL DATA

Refer to Appendix A of this manual or the merchandiser's serial plate for electrical information.

FIELD WIRING

Field wiring must be sized for component amperes stamped on the serial plate. Actual ampere draw may be less than specified.

ALWAYS CHECK THE SERIAL PLATE FOR COMPONENT AMPERES

ELECTRICAL CONNECTIONS

All wiring must be in compliance with NEC and local codes. All electrical connections ***for GSVM-5272 self-contained*** are to be made in the electrical *Handy Box* located behind the removable base panel at the left end of the merchandiser when facing the discharge air honeycomb. GSVM-4060 and GSVM-4072 are provided with a power cord. For USA/Canada, a HI-Humidity Condensate Pan Kit is provided with GSVM-4060, a separate dedicated circuit is required - 120V, 15 Amp circuit and a NEMA 5-15R receptacle.

NOTE: This extra circuit is for the Hi-Humidity condensate pan kit only. It is not part of the case circuit.

POWER SWITCH

The main electrical power switch is located behind the front louvered access panel. The power switch must be turned OFF before servicing the merchandiser.

ELECTRICAL OUTLET

Before the merchandiser is connected to any wall circuit, use a voltmeter to check that the outlet is at 100% of the rated voltage. The wall circuit must be dedicated for the merchandiser. Failure to do so voids the warranty. Do not use an extension cord. Never plug in more than one merchandiser per electrical circuit.

- Always use a dedicated circuit with the amperage stated on the unit.
- Plug into an outlet designed for the plug.
- Do not overload the circuit
- Do not use long or thin extension cords. Never use adapters.
- If in doubt, call an electrician.

NEMA 5-20R
Receptacle
GSVM-4060
GSVM-4072

GSVM-4060 and GSVM-4072 have a factory-installed power cord that is attached at the electrical box.

⚠ WARNING

Risk of Electric Shock. If cord or plug becomes damaged, replace only with a cord and plug of the same type.

⚠ WARNING

Merchandiser must be grounded. Do not remove the power supply cord ground.

REFRIGERATION (Self Contained Models)

Each self contained model is equipped with its own condensing unit and control panel located beneath the display area. The correct type of refrigerant will be stamped on each merchandiser's serial plate. The merchandiser refrigeration piping is leak tested. The unit is charged with refrigerant, and shipped from the factory with all service valves open.

GSVM models have a refrigeration system that uses a hermetic compressor. GSVM-4060 and GSVM-4072 systems use a capillary tube for refrigerant control. The capillary tube is soldered to the suction line pull-out coil for proper heat exchange. **If the capillary should become plugged or damaged, it is best to replace the heat exchanger.**

GSVM-5272 employs a bleed port type expansion valve for proper refrigerant control. Read the merchandiser's serial plate for the appropriate refrigerant type and weight.

⚠ WARNING

— LOCK OUT / TAG OUT —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

WATER OUTLET AND WATER SEAL

GSVM models 4072 and 5272 require a floor drain. The condensate water outlet is located in the center of the merchandiser. The outlet has a factory-installed external water seal.

For self contained models like GSVM-4060, this water seal drains into an electric condensate pan located beneath the merchandiser. The pan uses a thermistor that senses water in the pan, adjusting the amount of heat required to evaporate the water. **Ensure the drain hose is properly trapped, and the drain area is not clogged.**

For self contained models like GSVM-4072 and GSVM-5272, this water seal drains into an electric condensate pan located beneath the merchandiser. The pan uses a thermistor that senses water in the pan, adjusting the amount of heat required to evaporate the water. GSVM has an electric condensate pan and uses a floating sensor.

Ensure the drain hose is properly trapped, and the drain area is not clogged. (Review note)

NOTE: All lower base panels must be in place when the refrigerator is operating. If not, airflow from the condenser will be directed over the evaporator pan and defrost water in the pan may overflow.

OPTIONAL ELECTRIC CONDENSATE PAN

An optional high-humidity condensate pan kit requires a dedicated 15 Amp circuit - 120V (GSVM-4072 and GSVM-5272).

CONTROLLER

Hussmann Controller Operation RTN

1. Plug the merchandiser plug into its receptacle.

   a. The controller display will illuminate.
   b. The interior light will illuminate.

2. After the control preprogrammed time delay of up to 6 minutes, the compressor and evaporator fan(s) will start if the control is calling for cooling.

3. The control will cycle the compressor but may also cycle evaporator fan(s) on and off determined by the Set-Point and Differential temperatures.

   a. The Set-Point is the adjustable preprogrammed temperature.
   b. The Differential is the non-adjustable pre programmed temperature.
   c. The Control is designed to read and display a cabinet temperature not a product temperature.

This cabinet temperature may reflect the refrigeration cycle of the Set-Point and it's Differential. The most accurate temperature on a cabinets operation is to verify the product temperature.

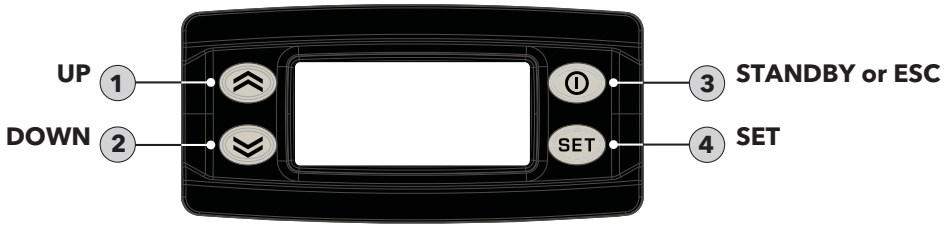
Taking as an example a VRL case, freezer, If the Set-Point is -12°F and the Differential is 9°F. (Set-Point) -12°F + 9 (Differential) = -3°F. The compressor and evaporator fan(s) will cycle off -12°F and back on at -3°F.

Main Features:

- Panel-mounted
- Energy saving algorithms and optimised defrost control
- 8 preloaded applications
- Defrost at single / double evaporator
- Frame Heater
- Local network auto-configuration
- Direct load connection (up to 2 HP)
- Supply voltage control LVD
- Presence of an open collector output

KDEPLUS BUTTONS

The **KDEPlus** keyboard has 4 keys, as shown in the illustration:



Information reprinted with permission from the controller manufacturer.

Key Functions:

- 2 ON/OFF regulators for HOT/COLD
- Single defrost and double evaporator
  (heatings, modulated heaters, reverse cycle, hot gas)
- Evaporator fans and condenser fans
- Frame Heater
- AUX
- Light
- Door switch
- ON /OFF
- Deep cooling cycle
- Day / Night
- Diagnostics
- "Easy Map" programming
- Programmable inputs/outputs
- LINK2 local area network
- RS485 communication protocol: Modbus
- Compatible with Device Manager (DM)
- Compatible with Unicard and Multi-function key

TECHNICAL DATA

Classification:	electronic automatic control (not safety) device for incorporation
Mounting:	panel mounting
Type of action:	1.B
Pollution class:	2
Material class:	IIIa
Overvoltage category:	II
Nominal pulse voltage:	2500V
Temperature:	Use: -5 … +55°C - Storage: -30 … +85°C
Power supply:	SMPS 100-240Va ±10% 50/60 Hz
Power consumption:	5.5W max
Fire resistance category:	D
Software class:	A
RTC battery life:	In absence of external power, the clock battery will last 3 years.

FURTHER INFORMATION

INPUT CHARACTERISTICS

Measurement range:	**NTC**: -50.0°C ... +110°C; **PTC**: -55.0°C ... +150°C; **PT1000**: -60.0°C ... +150°C (on 3-digit display with +/- sign)
Accuracy:	±1.0° for temperatures below -30°C ±0.5° for temperatures between -30°C and +25°C ±1.0° for temperatures above +25°C
Resolution:	1 or 0.1°C
Buzzer:	NO
Analogue/Digital Inputs:	5 configurable NTC/PTC/PT1000/DI inputs 1 multi-function, voltage-free digital input (D.I.)

OUTPUT CHARACTERISTICS

Digital Outputs:	**OUT1**:	1 SPST relay:	2HP	max 240V~
	OUT2:	1 SPDT relay:	1HP	max 250V~
	OUT3:	1 SPDT relay:	8(4)A	max 250V~
	OUT4:	1 SPST relay:	8(4)A	max 250V~
OC (Open Collector) Output:	**OC**:	1 multifunctional output:		12V⎓ 20mA

MECHANICAL CHARACTERISTICS

Dimensions:	121x92 mm
Terminals:	faston and screw for wires with cross-section of 2.5mm^2
Connectors:	TTL for Unicard / Device Manager connection (via DMI)
Humidity:	Usage / Storage: 10...90% RH (non-condensing)

REGULATIONS

Electromagnetic compatibility: The device complies with Directive 2004/108/EC

Safety: The device complies with Directive 2006/95/EC

Food Safety: The device complies with standard EN13485 as follows:

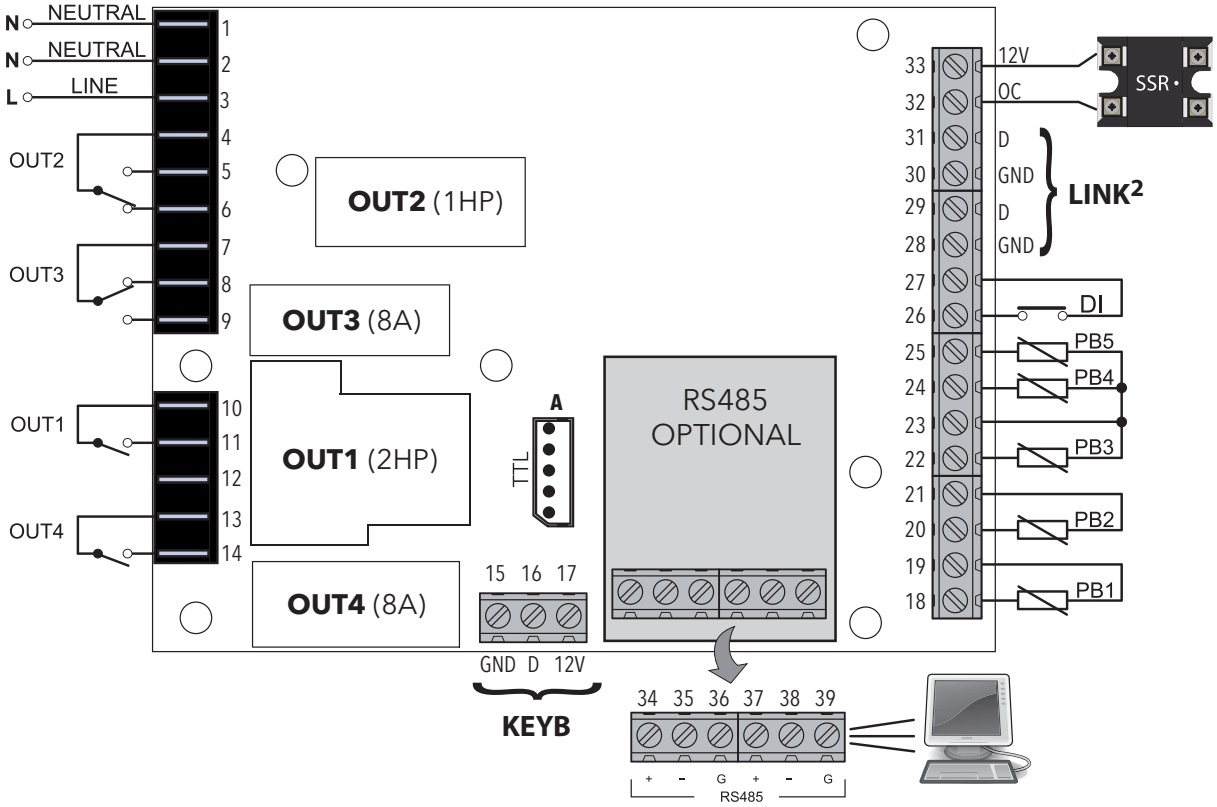
- Suitable for storage.
- Application: air.
- Climate range A
- measurement class 1 in the range from -25°C to 15°C (*)

(*** with Eliwell probes only**)

NOTE: The technical specifications stated in this document regarding measurement (range, accuracy, resolution, etc.) r the instrument alone and not to any accessories provided, such as the probes.
This means, for example, that the error introduced by the probe must be added to the error of the instrument.

CONNECTIONS

TERMINALS

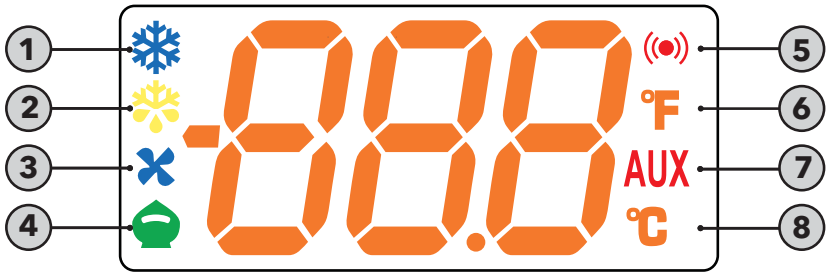


* **N.B.:** analogue inputs PB1...PB5 can also be configured as Digital Inputs DI.

TERMINALS				
1-2	NEUTRAL. These are power supply terminals.		**15-16-17**	Connection to KDEPlus or KDWPlus external keyboard or ECPlus echo module.
3	LINE. These are power supply terminals.		**19-18**	PB1 probe connection.
4	OUT2 Shared Terminal		**21-20**	PB2 probe connection.
5	N.O. OUT2		**23-22**	PB3 probe connection.
6	N.C. OUT2		**23-24**	PB4 probe connection.
7	OUT3 Shared Terminal		**23-25**	PB5 probe connection.
8	N.C. OUT3		**27-26**	Digital input (DI).
9	N.O. OUT3		**28-29**	LINK². Connection 1 - local area network.
10	OUT1 Shared Terminal		**30-31**	LINK². Connection 2 - local area network.
11	N.O. OUT1		**32-33**	Open Collector Output (OC).
12	Not Used		**A**	TTL Unicard/DMI/Multi Function Key connection
13	OUT4 Shared Terminal		**34-35-36**	RS485. Connection 1 - Supervision Gateway.
14	N.O. OUT4		**37-38-39**	RS485. Connection 2 - Supervision Gateway.

LED

RTN400 family controllers will also function even if a keyboard has not been connected.
With **KDEPlus** or **KDWPlus** keyboards (which are the same and guarantee the same functions), the display will be as follows:



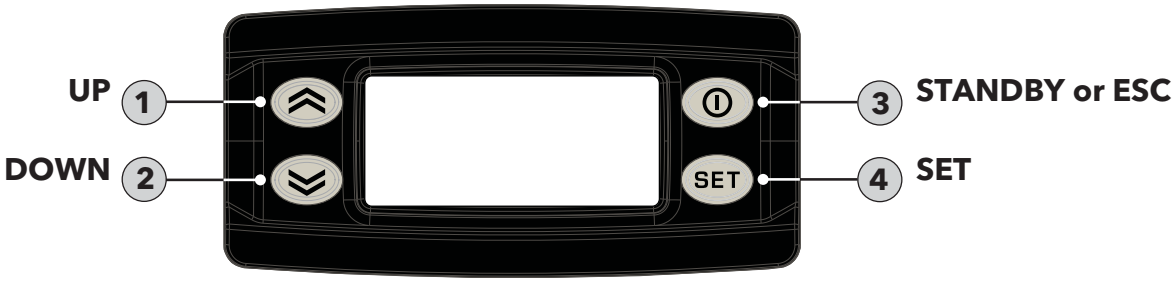
Meaning of LEDs:

No	Icon	LED	Operation	Meaning
1		**Compressor**	Permanently on	compressor on
			Blinking	Delay, protection or start-up blocked
			OFF	otherwise
2		**Defrost**	Permanently on	Defrost active
			Blinking	Activated manually or from Digital Input
			OFF	otherwise
3		**Fans**	Permanently on	Fans active
			OFF	otherwise
4		**Reduced SET / Economy**	Permanently on	Energy Saving active
			Blinking	Reduced setpoint active
			OFF	otherwise
5		**Alarm**	Permanently on	alarm active
			Blinking	Alarm acknowledged
			OFF	otherwise
6	°F	**°F readout**	Permanently on	°F setting (dro =1)
			OFF	otherwise
7	AUX	**AUX**	Permanently on	Aux output active and/or light on
			Blinking	Deep cooling on
			OFF	otherwise
8	°C	**°C readout**	Permanently on	°C setting (dro = 0)
			OFF	otherwise

N.B.: When the instrument is powered on it performs a lamp test, during which time the display and LEDs will flash for several seconds to check that they all function correctly.

KDEPLUS BUTTONS

The **KDEPlus** keyboard has 4 keys, as shown in the illustration:



Each key has a different function depending on whether it is:

- Pressed and released
- Pressed for at least 5 seconds
- Pressed and held at start-up
- Pressed in combination with another key.

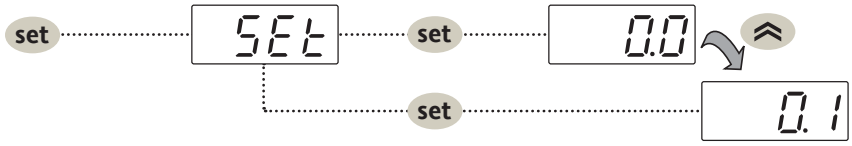
KEYS

The following table summarizes the function of each key:

No	Key	Action		
		Pressed and released	**Press for at least 5 secs**	**Start-up**
1		• Scrolls through menu items • Decreases values	Activates the **Manual Defrost function** (from outside menus).	---
2		• Scrolls through menu items • Decreases values	Function can be configured by the user (from outside menus). (see parameter H32)	---
3		• Returns to the previous menu level • Confirms parameter value	Activates the Stand-by function (from outside menus).	---
4		• Displays any alarms (if active) • Opens Machine Status menu • Confirms commands	Opens the Programming Menu (User and Installer parameters)	When pressed during start-up it enables the user to select the application to be loaded.

SETPOINT: SETTING AND EDIT LOCK

To display the Setpoint value, press the set key to enter the "Machine Status" menu, then press the set key again when the "SEt" label is displayed.
The Setpoint value appears on the display. To change the Setpoint value, press the ⌃ and ⌄ keys within 15 seconds.
Press set to confirm the modification.



It is possible to disable the keypad on this device.
The keypad can be locked by programming the "LOC" parameter appropriately.
With the keypad locked, you can still access the "Machine Status" menu by pressing set to display the Setpoint, but you cannot edit it. To disable the keypad lock, repeat the locking procedure.

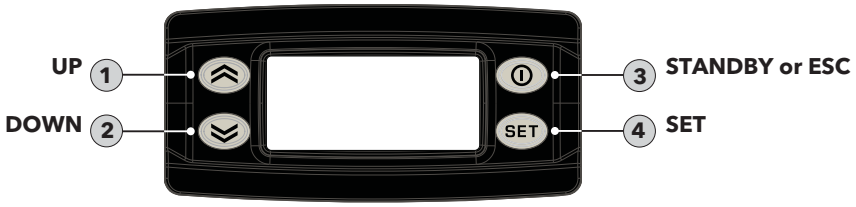
DISPLAY PROBES VALUE

To display the value read by probes connected to the device, press the set key and enter the "Machine Status" menu, then press the key again when one of the probe-related labels "Pb1...Pb5" press the set key again. The value measured by the associated probe will appear on the display.

NOTE: The displayed value is read-only and cannot be modified.

KDEPLUS BUTTONS

The **KDEPlus** keyboard has 4 keys, as shown in the illustration:



KEY-ACTIVATED FUNCTIONS

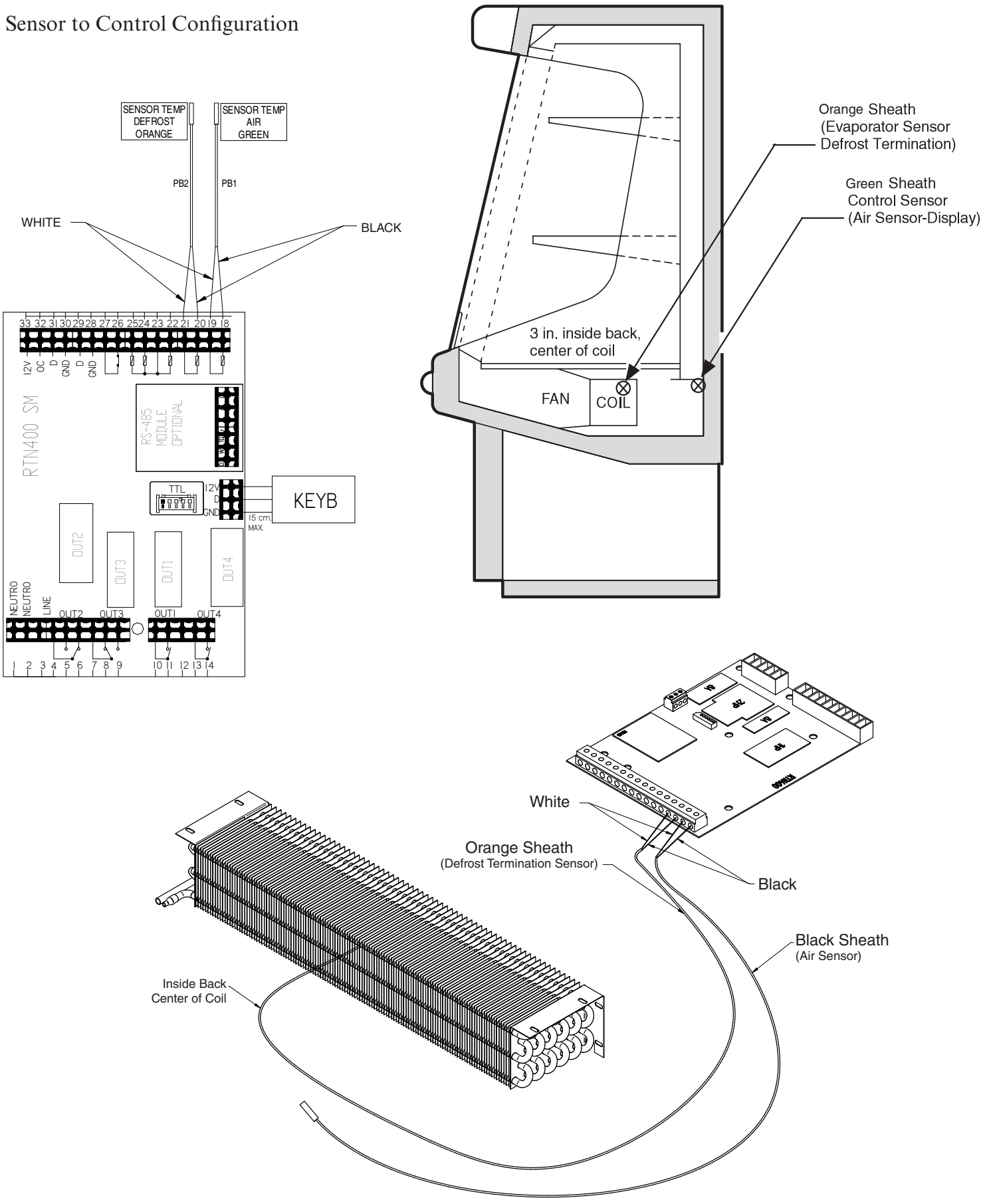
All models have the **UP** key set to enable the "Manual Defrost" function.
The DOWN and ESC keys can also be set to activate any other function required by the user.
The parameters for configuring the two keys are:

- **H11** = DOWN key configuration
- **H33** = ESC key configuration

The values that can be set apply to both keys and the functions that can be activated are:

H32/H33 value	Function to enable
0	disabled
1	defrost
2	reduced set
3	Light
4	Energy saving
5	AUX
6	Stand-by
7	Deep cooling cycle
8	Start/end defrost

Sensor to Control Configuration



START UP / OPERATION

START UP

Follow the electromechanical controls start up procedures as detailed in Section 2 of this manual.

Each self contained merchandiser has its own evaporator coil. Model GSVM-5272 has an expansion valve (TEV). The TEV has been factory set at design conditions to provide the recommended performance. GSVM-4060 and GSVM-4072 have capillary tubes.

a. Check the interior cabinet thoroughly for loose nuts, bolts and electrical connections.
b. Inspect the refrigeration lines for visible damage or chafing.
c. Replace electrical box cover and access panel.
d. Turn on the electrical power, power switch and start the merchandiser. The merchandiser must pull down in temperature.

Allow merchandiser 24 hours to operate before loading product.

TEV Adjustment (GSVM-5272 only)

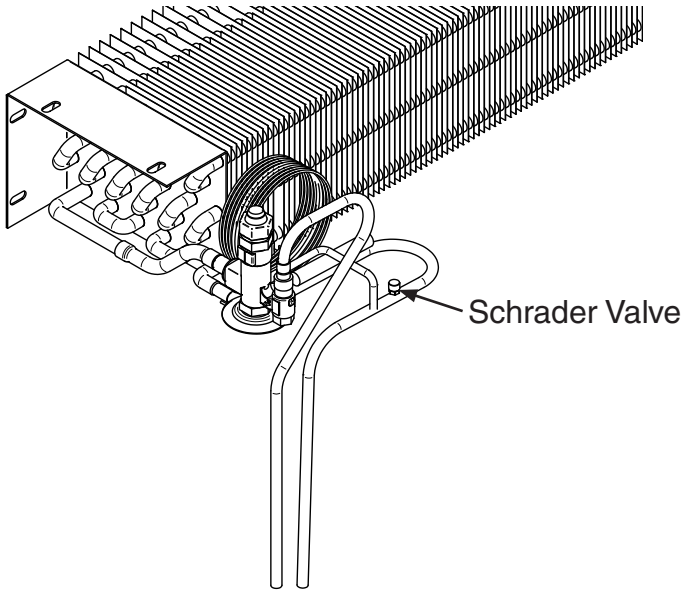
Expansion valves may be adjusted to fully feed the evaporator. Before attempting to adjust valves, make sure the evaporator is clear or only lightly covered with frost, and the merchandiser is within 10°F of its expected operating temperature. Adjust the valve as Follows:

a. Attach a probe to the suction line near the expansion valve bulb.

b. Obtain a pressure reading from the factory installed Schraeder valve. Convert the pressure reading to a saturated temperature for the refrigerant.

Temperature (b) minus Temperature (a) is the superheat. The valve should be adjusted so that the greatest difference between the two temperatures is 3° F (-16º C) to 5° F (-15º C).

Make adjustments of no more than 1/2 turn of the valve stem at a time and wait for at least 15 minutes before rechecking the probe temperature and making further adjustments.



CONTROLS and ADJUSTMENTS

Refrigeration Controls			Defrost Controls			
Model	Product Application	Discharge Air Temperature	Defrost Frequency (per day)	Type of Defrost	Temp. Termination	Failsafe Time (Minutes)
GVSM-4060 Self Contained	Medium Temp. (Dairy, Deli)	30°-35° F	3	Off Time	48°F	45
GVSM-4072 Self Contained	Medium Temp. (Dairy, Deli)	30°-35° F	3	Off Time	48°F	45
GVSM-5272 Self Contained	Medium Temp. (Dairy, Deli)	30°-35° F	3	Off Time	48°F	45

1. The T-stat controller controls refrigeration temperature. This is factory installed in the control panel. Adjust this control to maintain the discharge air temperature shown. Measure discharge air temperatures at the center of the discharge honeycomb.

Defrosts are time initiated and time terminated for this model. The defrost setting is factory set as shown above.

LOAD LIMITS

Each merchandiser has a load limit decal. Shelf life of perishables will be short if load limit is violated.

AT NO TIME SHOULD MERCHANDISERS BE STOCKED BEYOND THE LOAD LIMITS INDICATED.

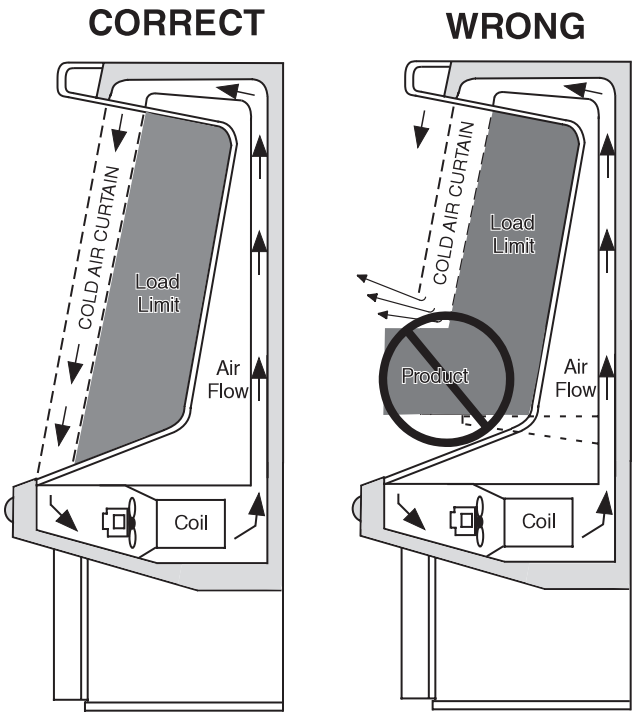
DO NOT BLOCK AIR LOUVERS.

LOAD LIMIT

STOCKING

Product should NOT be placed inside the merchandisers until merchandisers are at proper operating temperature.

Allow merchandiser 24 hours to operate before loading product.



Do not stock product past shelves

⚠ WARNING

Product will be degraded and may spoil if allowed to sit in a non-refrigerated area.

Proper rotation of product during stocking is necessary to prevent product loss. Always bring the oldest product to the front and set the newest to the back.

AIR DISCHARGE AND RETURN FLUES MUST REMAIN OPEN AND FREE OF OBSTRUCTION AT ALL TIMES to provide proper refrigeration and air curtain performance. Do not allow product, packages, signs, etc. to block these grilles. Do not use non-approved shelving, baskets, display racks, or any accessory that could hamper air curtain performance.

Do not allow product to be placed outside of the designated load limits in the illustration at left. Air flows through the back wall, over the product on the shelves, across the face of the product (air curtain), and into the return air grille.

SOLAR THERMOMETER

GSVM models have solar thermometers. The thermometer is located at the top, front center of the merchandiser's cabinet interior.

Temperature is displayed in Fahrenheit degrees as a standard option. Celsius is also an available option. The thermometer may be replaced if it becomes damaged.

To replace: remove the two screws securing the thermometer to its mounting bracket. Remove the sensing element from the clip, and install the new thermometer in reverse order.

SHELF MAXIMUM WEIGHT LIMITS

Hussmann merchandiser shelves are designed to support the maximum weight load limits as indicated in the table below.

Exceeding these maximum weight load limits may cause damage to the shelf or shelves, damage to the merchandiser, damage to store products, and potentially create a hazardous condition for customers and staff. Exceeding the indicated maximum weight load limits constitutes misuse as described in the Hussmann Limited Warranty.

GSVM-4060 has two standard shelves for product display. The 13 in. shelf should be positioned above the 15 in. shelf. Models GSVM-5272 and GSVM-4072 have an additional standard 13 in. shelf that is also to be positioned above the 15 in. shelf.

Maximum Shelf Weight Limits

	[1] Flat	17° Tilt	30° Tilt
Bottom Sheet Metal Area	250 lb (113.4 kg)	N/A	N/A
Standard 13 in. (330 mm) Shelf	250 lb (113.4 kg)	250 lb (113.4 kg)	75 lb (34 kg)
Standard 15 in. Shelf w/ optional 6° adapters	125 lb (56.7 kg)	N/A	N/A
Optional Wire Baskets	200 lb (90.7 kg)	100 lb (35.4 kg)	30 lb (13.6 kg)

[1] Shelf load limits at 0° tilt

MAINTENANCE

CARE AND CLEANING

Long life and satisfactory performance of any equipment is dependent upon the care it receives. To ensure long life, proper sanitation and minimum maintenance costs, these merchandisers should be thoroughly cleaned, all debris removed and the interiors washed down, weekly.

Exterior Surfaces
The exterior surfaces must be cleaned with a mild detergent and warm water to protect and maintain their attractive finish. **NEVER USE ABRASIVE CLEANSERS OR SCOURING PADS.**

Interior Surfaces
The interior surfaces may be cleaned with most domestic detergents, ammonia based cleaners and sanitizing solutions with no harm to the surface. Self contained models empty into a limited capacity evaporation pan, which will overflow if excess water is used in cleaning.

Do NOT Use:

•Abrasive cleansers and scouring pads, as these will mar the finish.

•Coarse paper towels on coated glass.

•Ammonia-based cleaners on acrylic parts.

•Solvent, oil or acidic based cleaners on any interior surfaces.

•Do not use high pressure water hoses.

⚠ WARNING

Product will be degraded and may spoil if allowed to sit in a non-refrigerated area.

Do:

•Disconnect electrical power before cleaning.

•Remove the product and all loose debris to avoid clogging the waste outlet.

•Store product in a refrigerated area such as a cooler. Remove only as much product as can be taken to the cooler in a timely manner.

•Thoroughly clean all surfaces with soap and hot water. **DO NOT USE STEAM OR HIGH WATER PRESSURE HOSES TO WASH THE INTERIOR.** THESE WILL DESTROY THE MERCHANDISERS' SEALING CAUSING LEAKS AND POOR PERFORMANCE.

•Lift hinged fan plenum for cleaning. Hook chain in rear panel to secure plenum during cleaning. BE SURE TO REPOSITION THE FAN PLENUM AFTER CLEANING MERCHANDISER.

•Take care to minimize direct contact between fan motors and cleaning or rinse water.
•Do NOT flood merchandiser with water.

⚠ WARNING

Do NOT allow cleaning agent or cloth to contact food product.

NEVER INTRODUCE WATER FASTER THAN THE WASTE OUTLET CAN REMOVE IT.

SELF CONTAINED MODELS EMPTY INTO AN EVAPORATION PAN THAT WILL OVERFLOW IF TOO MUCH WATER IS INTRODUCED DURING CLEANING.

•Allow merchandisers to dry before resuming operation.

•After cleaning is completed, turn on power to the merchandiser.

⚠ WARNING

— LOCK OUT / TAG OUT —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

CLEANING DISCHARGE HONEYCOMB

Discharge air honeycombs should be cleaned every six months. Dirty honeycombs will cause merchandisers to perform poorly. The honeycombs may be cleaned with a vacuum cleaner. Soap and water may be used if all water is removed from the honeycombs cells before replacing. Be careful not to damage the honeycombs.

1. Using a flat object such as a screw driver, compress the honeycomb and remove it from its retainer.

2. Clean and dry the air honeycombs.

3. After cleaning, replace in reverse order. Damaged honeycombs must be replaced.

⚠ CAUTION

DO NOT FLOOD!

Use only enough water necessary to clean surface. Water must not drip down the case!

Never use ammonia based cleansers, abrasive cleansers, or scouring pads.

CLEANING STAINLESS STEEL SURFACES

Use non-abrasive cleaning materials, and always polish with grain of the steel. Use warm water or add a mild detergent to the water and apply with a cloth. Always wipe rails dry after wetting.

Use alkaline chlorinated or non-chlorine containing cleaners such as window cleaners and mild detergents. Do not use cleaners containing salts as this may cause pitting and rusting of the stainless steel finish. Do not use bleach.

CLEANING SOLAR THERMOMETER

GSVM models have solar thermometers. The thermometer is located at the top, front center of the merchandiser's cabinet interior.

To clean the thermometer:

1. Remove the two screws securing the thermometer to its mounting bracket. Remove the sensing element from the clip

2. Use non-abrasive cleaning materials and a mild detergent to clean thermometer.

3. Be sure to wipe the element clean of any residues.

⚠ CAUTION

Do NOT use HOT water on Cold glass Surfaces. This can cause the glass to shatter and could result in personal injury. Allow glass fronts, to warm before applying hot water.

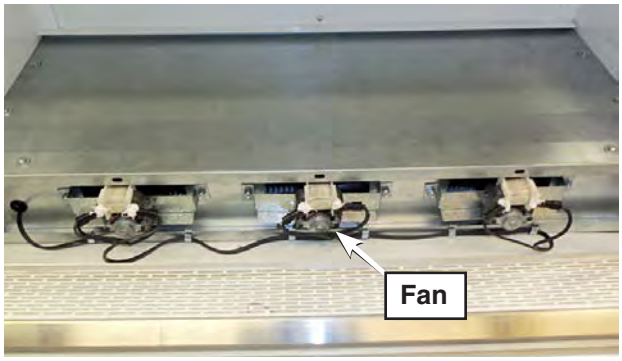
CLEANING UNDER DISPLAY PAN

Remove all product from the merchandiser and place in cooler. Always disconnect electrical power before cleaning.

1. Remove the display pan.

2. Use non-abrasive cleaning materials and a mild detergent to clean display pan.

3. Wipe down the insides of the merchandiser with a mild detergent, and replace display pan. Allow merchandiser to pull down in temperature before loading product.



Merchandiser with display pan removed

PRECAUTION

CLEANING PRECAUTIONS

When Cleaning:

- Do not use high pressure water hoses
- Do not introduce water faster than waste outlet can drain
- NEVER INTRODUCE WATER ON SELF CONTAINED UNIT WITH AN EVAPORATION PAN
- NEVER USE A CLEANING OR SANITIZING SOLUTION THAT HAS OIL BASE (these will dissolve the butyl sealants) or an AMMONIA BASE (this will corrode the copper components of the merchandiser)
- TO PRESERVE THE ATTRACTIVE FINISH:
- Use a water and a mild detergent for the exterior only
- Do NOT use a chlorinated cleaner on any surface
- Do NOT use abrasives or steel wool scouring pads (these will mar the finish)

CLEANING EVAPORATION PAN

(GSVM-4060 STANDARD)
(GSVM-4072/5272-OPTIONAL)

The condensate water outlet for self contained models empties into a limited capacity evaporation pan.

Debris or dirt accumulation inside the condensate evaporation pan or on the heater coil will reduce the pan's evaporation capacity and cause premature heater failure. The evaporation pan waste water will overflow and spill onto the floor if the heater is not properly operating.

Remove accumulated debris from the evaporation pan. Wipe down heater coil with a cloth and warm water. Be sure to remove any dirt, debris or liquids from the heater coil.

Water introduced during cleaning will cause the evaporation pan to overflow.

WARNING

Evaporation Pan is Hot!

and poses risk of bodily injury – Always Wear gloves and protective eye wear when servicing. Turn off evaporation pan heater, and allow pan to cool.

WARNING

SHUT FANS OFF DURING CLEANING PROCESS.

CLEANING COILS

Condenser coils should be cleaned at least once per month. Additional cleaning may be needed depending on the operational environment. A dirty condenser blocks normal airflow through the coils.

Airflow blockage increases energy consumption and reduces the merchandiser's ability to maintain operating temperature.

To clean the coils, use a vacuum cleaner with a wand attachment and a soft (non-metallic) brush to remove dirt and debris. Do not bend coil fins. Always wear gloves and protective eye wear when cleaning near sharp coil fins and dust particles.

NEVER USE SHARP OBJECTS AROUND COILS. **Use a soft brush or vacuum brush to clean debris from coils.** ***Do not puncture coils!*** Do not bend fins. Contact an authorized service technician if a coil is punctured, cracked, or otherwise damaged.

ICE in or on the coil indicates the refrigeration and defrost cycle is not operating properly. Contact an authorized service technician to determine the cause of icing, and to make adjustments as necessary. To maintain product integrity, move all product to a cooler until the unit has returned to normal operating temperatures.

MAINTAINING FLUORESCENT LAMPS

Fluorescent lamps should not be allowed to run to failure. If a re-lamp schedule is not in place, the tubes should be inspected for signs of degradation (blackened ends). Degraded or failed tubes should be replaced.

Allowing severely degraded lamps to operate may cause a ballast failure or could expose the lamp holder to excessive heat. Replacing degraded bulbs is more cost effective than replacing ballast and lamp-holders. Traditional re-lamp programs are 18-to-24 month intervals. In the absence of a re-lamp program, a yearly inspection of the lighting system is recommended.

1. Inspect all lamp sockets and plug-receptacle connections for signs of arching. Replace any component that shows signs of arching.
2. Make sure all unused receptacles have their close-off covers securely installed.
3. Make sure proper cleaning procedures are followed. Lights and fans MUST be turned off when a case is cleaned and MUST be allowed to dry before turning power back on.
4. Do not use a pressure nozzle to clean inside of case.

REMOVING SCRATCHES FROM BUMPER

Most scratches and dings can be removed using the following procedure.

1. Use steel wool to smooth out the surface area of the bumper.

2. Clean area.

3. Apply vinyl or car wax and polish surface for a smooth glossy finish.

Self-Contained Refrigeration Equipment Maintenance Check List

*****Warranty does not cover issues caused by improper installation or lack of basic preventative maintenance. *****

Record starting date	
Store Name and Number	
Store Address	
Unit Model Number	
Unit Serial Number	
Contractor/Technician	

	Technician									
	PM date									
PM activity-For visual inspection items, denote "ok or complete" in the column to right when PM has been performed. For measured data requested, record data requested in the appropriate column to the right)	Quarterly	Semi-Annually	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Check in with store manager, record any complaints or issues they have with unit.	X									
Look unit over for any damage, vibrations or abnormal noise.	X									
Verify unit is level side to side and front to rear.	X									
Confirm refrigerant lines properly are secured and not touching or rubbing other lines, wires or frame work.	X									
Verify fan motors and motor mounts are tight.	X									
Confirm fan blade/s are tight and not rubbing or hitting.	X									
Make sure all electrical connections, factory and field, are tight.	X									
Verify electrical connections at lamps are they secure and dry.	X									
Check for and replace any frayed or chaffed wiring.	X									
Check all electrical wiring make sure it is secured and not on any sharp edges or hot lines.	X									
Check for air disturbances externall to the unit. Heat and air registers, fans, and doors etc.	X									
Check for water leaks.	X									
Clean evaporator coil/s and fan blade/s. Do not use an acid base cleaner. Rinse off any cleaner residue.		X								
Clean discharge air honeycombs or grilles. Do not use an acid base cleaner. Rinse off any cleaner residue.		X								
Clean condenser coil/s and fan blade/s. Do not use an acid base Cleaner. Rinse off any cleaner residue.		X								
Clean condensate drain pan and drain line.		X								
Verify condensate drain lines are clear and functioning.		X								
Record voltage reading at unit with unit off?		X								
Verify condenser and evaporator fans are working.	X									
Record condenser air inlet temperature	X									
Record condenser air outlet temperature	X									
Is condenser air inlet or air exhaust restricted or recirculating?	X									
Verify there are no visual oil or refrigerant leaks.	X									
Record voltage reading with unit running.		X								
Record compressor amp draw.		X								
Record defrost heater voltage and amp draw.		X								
Record anti-sweat heater voltage and amp draw.		X								
Record case product temperature.	X									
Record unit discharge air temperature.	X									
Record unit return air temperature.	X									
Record ambient conditions around unit (wet Bulb temperature and dry bulb temperature).	X									
Check product loading, do not load beyond the units load limits.	X									
Verify clearances on sides/back of unit.	X									
Check unit controller for proper operation. See controller or 1/0 Manual for proper controller operation.		X								
Confirm door switches function.	X									
Verify unit doors and lids work and are sealed correctly.	X									
Verify that all the panels, shields and covers are in place.	X									

Technician Notes:

NOTES:

SERVICE

REPLACING FAN MOTORS AND BLADES

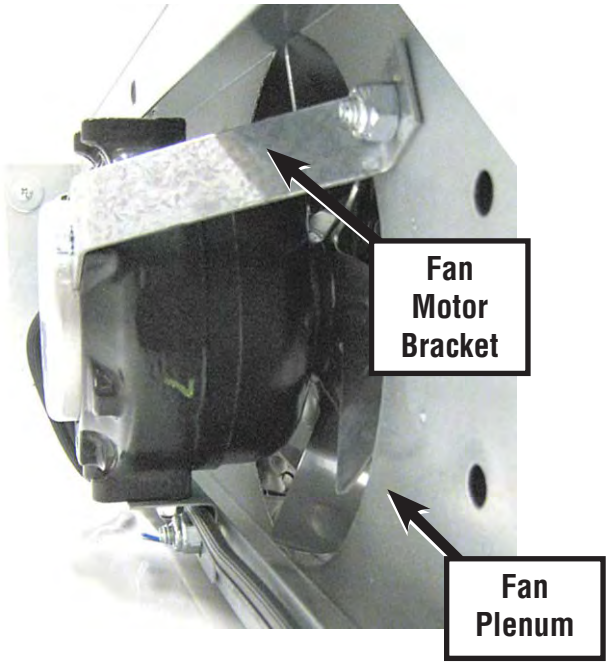
⚠ WARNING

— LOCK OUT / TAG OUT —
To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

Should it ever be necessary to service or replace the fan motors or blades be certain that the fan blades are reinstalled correctly. THE BLADES MUST BE INSTALLED WITH RAISED EMBOSSING (PART NUMBER ON PLASTIC BLADES) POSITIONED AS INDICATED ON THE PARTS LIST.

For access to these fans:

1. Remove product and place in a refrigerated area. Disconnect electrical power.
2. Remove bottom pan.
3. **Disconnect fan from wiring harness.**
4. If it is determined that fan motor needs to be replaced, remove fan motor brackets from the fan plenum as shown.
5. Replace fan motor and/or blades.
6. Install brackets to fan motor and motor bracket to the fan plenum.
7. Reconnect fan motor to wiring harness.
8. Turn on power.
9. Verify that motor is working and blade is turning in the correct direction.
10. Reinstall display pans. Bring merchandiser to operating temperature before restocking.



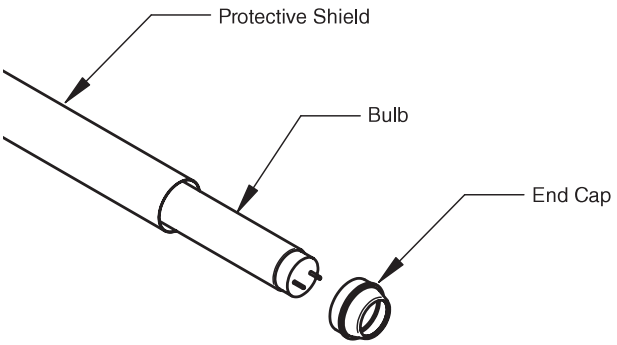
⚠ WARNING

Product will be degraded and may spoil if allowed to sit in a non-refrigerated area.

REPLACING FLUORESCENT LAMPS

Fluorescent lamps have a plastic shield. When the lamp is replaced, keep the lamp shield to install over the new lamp.

The switch under the display lamp cover operates both the display lamp and interior lamps.



Remove Plastic Pins Attaching Display Lamp.

⚠ WARNING

— LOCK OUT / TAG OUT —

To avoid serious injury or death from electrical shock, always disconnect the electrical power at the main disconnect when servicing or replacing any electrical component. This includes, but is not limited to, such items as doors, lights, fans, heaters, and thermostats.

LED FIXTURE REPLACEMENT

For canopy LEDs, the protective shield is incorporated as part of the LED fixture. Rotate the LED fixture to release it from the lamp holder. Shelf LED fixtures are held in place by magnets. Pull the fixture down firmly to release disconnect cord from receptacle on the rear wall.

⚠ WARNING

Fluorescent lamps contain mercury vapor. Mercury exposure at high levels can harm the brain, heart, kidneys, lungs, and immune system of people of all ages. Do not break or puncture fluorescent lamps. Dispose of, or store, all fluorescent lamps in accordance with Federal (40 CFR 273), State, and local hazardous waste requirements. Refer to: http://www.epa.gov/mercury/about.htm

TROUBLESHOOTING GUIDE

PROBLEM	PROBABLE CAUSE	SOLUTION
Compressor will not start. (no noise)	1. Power disconnected	1. Check service cord or wiring connection
	2. Blown fuse or breaker	2. Replace fuse or reset breaker
	3. Defective or broken wiring	3. Repair or replace
	4. Defective overload	4. Replace
	5. Defective temperature control	5. Replace
Compressor will not start; cuts out on overload.	1. Low voltage	1. Cabinet voltage must not be more than 5% below rating
	2. Defective compressor	2. Replace
	3. Defective relay	3. Replace
	4. Restriction (pinched cap tube)	4. Repair or replace
	5. Restriction (moisture)	5. Leak check, replace drier evacuate and recharge
	6. Condenser blocked with dust and dirt	6. Clean condenser
	7. Defective condenser fan motor	7. Replace
Warm storage temperature	1. Temperature control not set properly	1. Reset control. Rotate knob Clockwise
	2. Short or refrigerant	2. Leak check, replace drier evacuate and recharge
	3. Cabinet location too warm	3. Move to cooler location or correct excessive heat source
	4. Refrigerant over-charge	4. Purge system, evacuate and recharge
	5. Low voltage, compressor cycling on overload	5. Compressor voltage must not be more than 5% below rating
Compressor runs continuously; product too warm.	1. Short of refrigerant	1. Leak check, replace drier, evacuate and recharge
	2. Inefficient compressor	2. Replace
	3. Coil iced up	3. Force manual defrost
Compressor runs continuously; product too cold	1. Defective control	1. Replace
	2. Control sensing element not in positive contact	2. Assure proper contact
	3. Short on refrigerant	3. Leak check, replace drier evacuate and recharge

TROUBLESHOOTING LIGHT GUIDE

PROBLEM	SOLUTION
Lights won't start	1. Check light switch 2. Check continuity to ballast / Power Supply 3. Check to see if bulbs are inserted properly in sockets 4. Check voltage
Lights flicker	1. Allow lamps to warm up 2. Check lamp sleeve for cracks 3. Check sockets for moisture and proper contact 4. Bulb replacement may be necessary 5. Check voltage 6. New bulbs tend to flicker until used

GSVM ACCESSORIES

The following is a description of the various accessories available for the GSVM.

Caster Kit — Consists of 5 in. braking casters, which screw in to the standard threaded holes in the four corners under the cage occupied by the standard leg levelers. The kit will add 5 5/8 in. of height to the case.

Leg Kit — The legs also go into the same holes as the standard levelers, which will have to be removed. The legs are adjustable and will add 5 5/16 in. to the height of the case. The skirt kit requires the use of these legs.

Four-sided Skirt Kit — This is a four-sided skirt that encloses the open area under the merchandiser when the leg kit is used. The skirt kit clamps to the legs.

Night Cover — This is a clear, 5 mm thick, polyester shade cover that covers the face of the merchandiser. It will fasten to the top of the merchandiser and be drawn to a snap fastener in the area above the front bumper. The cover, although loose fitting on the ends, will conserve energy during periods when the store is not open. The cover is standard on the GSVM-5272.

Wrap-Around Bumper Kit — This bumper replaces the standard front bumper and wraps around both sides of the merchandiser at the standard height of 22 inches to the centerline of the 2 1/4 in. wide bumper.

Colored Accent Panel — This panel can be (a.) the top front panel over the product, (b.) the panel behind the bumper, or (c.) the access panel below the bumper panel, or any combination of these.

Shelf end Trim Kit — Consists of four painted steel ends for the standard 13 in. and 15 in. shelves. This trim conceals and protects the exposed ends of the shelves. The trim kit attaches by two snap fasteners supplied with each trim piece for the GSVM-4060 model.

High Humidity Condensate Pan — (For GSVM-4072 & 5272) This is a 1,000 watt, 9 Amp. pan with a 6 ft - 9 in. 115V power cord attached. A dedicated circuit is required.

Shelf Upslope Tilt Adapter Kit — This kit consists of four zinc coated wire adapters to increase the two standard shelves, upslope from 1 1/2º to 6º.

Price Tag Molding Kit — This kit consists of aluminum price tag molding for the standard shelves. Price tag moulding will hold both 1 in. and 1.235 in. standard price tags. (Note that the standard shelves accept 1.235 in. tags.)

Wire Product Stop Kit — This kit consists of a 2 in. high chrome plated open wire stops for the standard shelf. This stop is mounted under tension and should not be confused with the wire front in the partition kit.

Wire Partition Kit — This is a free-standing wire system, which attaches to the standard shelves, and consists of a wire front, (different from the product stop) two wire sides and two partitions from the front to back, all chrome plated and 3 inches high.

Wire Cross Divider — This is a 3 inch high and 4 inch-long divider that could be ordered to be used with the wire partition kit above.

Wire Basket Kits — One kit is available to replace the top 13 in. shelf or shelves, another is available to replace the bottom 15 in. shelf. Each kit consists of a wire basket, two brackets, and two dividers, which could also be used as ends. These parts are zinc plated. The baskets have an 8 in. high back and a 4 in sloped front.

Wire Basket Dividers — These are additional dividers, which can be with the wire baskets kit to obtain additional partitioned areas in the baskets.

Additional Lighted Shelf — This consists of an additional 13 in. lighted shelf that can be positioned between the two standard shelves. It is the same construction as the top standard 13 in. shelf.

LED Lights — LED light fixtures replace fluorescent lights. This technology saves energy and extends component life.

Night Curtain — Night curtains cover the throat opening of the case and is installed on the case after normal business hours. Night curtains help reduce energy costs, allowing the refrigeration system to work less when the case is not in use. The night curtain for GSVM is standard for model 5272 and is an optional kit for models 4060 and 4072.

NOTES:

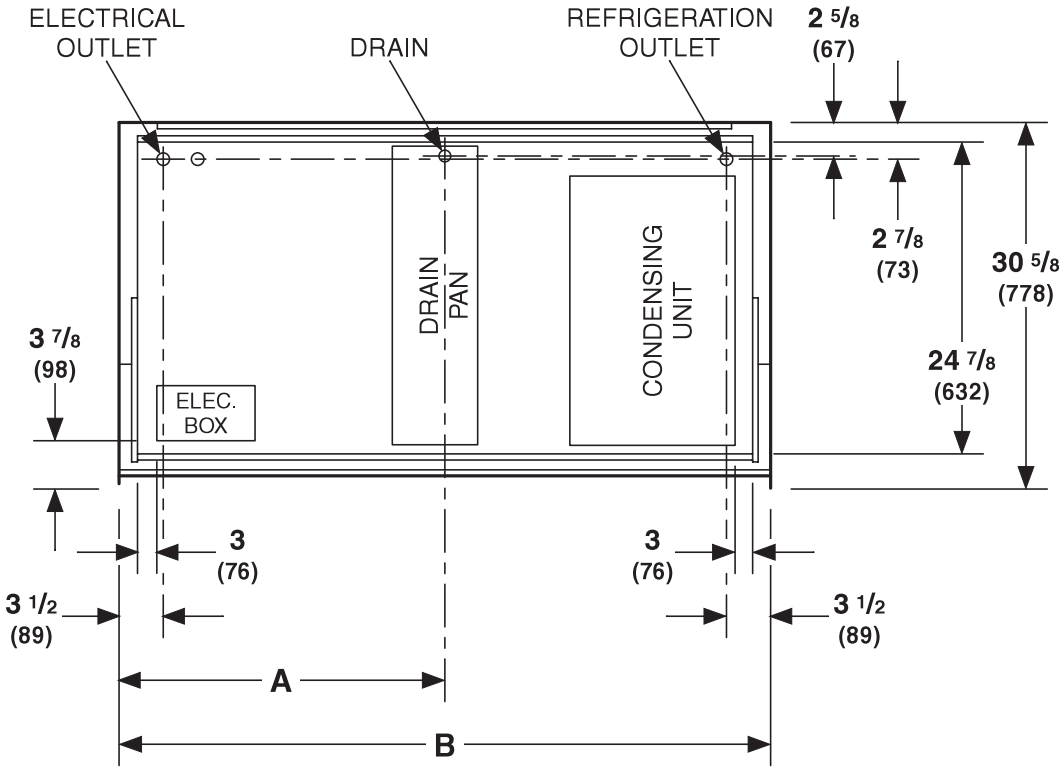
Parts List

MODELS		GSVM4060	GSVM4072	GSVM5272
Standard Parts				
Description	**Part Number**			
Evaporator Fan Motor	21S147	X	X	X
Evaporator Fan Blade	21S080	X	X	X
Evaporator Fan Motor Bracket	76218	X	X	X
Sensor NTC 4 mts Green	3023554	X	X	X
Sensor NTC 4 mts Green	3031571	X	X	X
Control Eliwell RTN400	3023537	X	X	X
Control Display KDE	3023552	X	X	X
Display cable 5 meter	3023553	X	X	X
Compressor Relay (T92P7A22-120)	0459304	X	X	X
Power Switch	03S286	X	X	X
Solar Thermometer	05S521	X	X	X
Assembly Lighted shelf Fluorescent 13” X 36	290631	X	X	
Assembly Lighted shelf Fluorescent 15” X 36	290632	X	X	
Assembly Lighted shelf Fluorescent 13” X 48	292131			X
Assembly Lighted shelf Fluorescent 15” X 48	292132			X
Shelf 13 X 36	22S2101	X	X	
Shelf 15 X 36	22S1932	X	X	
Shelf 13 X 48	22S2102			X
Shelf 15 X 48	22S244			X
Lamp Fluorescent (Shelf)	06S149	X	X	
Lamp Fluorescent (Canopy)	06S029	X	X	
Lamp Fluorescent (Shelf & Canopy)	06S010			X
Ballast Canopy Light	06S187	X	X	X
Ballast (lighted shelf)	06S042	X	X	
Ballast (lighted shelf)	06S016			X
Safety Shield Canopy light	06S07243	X	X	
Safety Shield Canopy & Shelf	06S0742			X
Safety Shield Shelf light	06S07417	X	X	
Starter Socket (Shelf Light)	06S024	X	X	X
Starter (Shelf Light) F-S2)	06S041	X	X	
Starter (Shelf Light) F-S4)	06S019			X
Lamp Holder (Canopy)	06S004	X	X	X
Lamp Holder (Shelf Light)	06S185	X	X	X
Light Switch (Canopy & Shelf)	03S176	X	X	X
Plug (3 prong (Lighted shelf)	19S691	X	X	X
Shelf Harness (3 shelf)	19S674	X	X	
Shelf Harness (4 shelf)	19S688			X
Evaporator Fan & Light Harness	19S6891	X		
Evaporator Fan & Light Harness	19S6892		X	X
Side Plexiglass Ends	29S892			X
Front Plexiglass	29S8961	X	X	
Front Plexiglass	29S8962			X
Leg Leveler	35S024	X	X	X
Black rubber Drain Hose (32”)	18S063	X	X	X
Night Curtain	35S066			X
Front Bumper End Cap (Black)	18S2932	X	X	X
Honeycomb	0519007	X	X	
Honeycomb	29S6812			X
Power Cord NEMA 5-20P	19S63612	X	X	

Parts List

MODELS		GSVM4060	GSVM4072	GSVM5272
OPTIONAL LED Canopy & Shelf				
Description	**Part Number**			
LED Canopy Lamp	0515964	X	X	
LED Canopy Lamp	0515965			X
LED Shelf Lamp	0523752	X	X	
LED Shelf Lamp	0523755			X
LED Power Supply	0518898	X	X	X
LED Harness 4 plug	0501237	X	X	X
LED Harness Plug	0523768	X	X	X
Refrigeration				
Condensing Unit Assy	0522149	X	X	
Condensing Unit Assy	292122			X
Drier (C052-S)	17S362	X	X	
Drier (C082-S)	17S365			X
Pull out Coil assy	29216	X	X	
Pull out Coil assy	29435			X
Assembly Evaporator Coil	291211	X	X	
Assembly Evaporator Coil	292951			X
Cap Tube Assembly	29152	X	X	
TXV (Sporlan EGSE-1-C) Sweat	E205982			X
TEV (Sporlan FS-1-C-B10) Flare	17S506			X
Evaporator Coil	26S116	X	X	
Evaporator Coil	26S115			X
Accumulator	17S098	X	X	
Condensate Pan				
Electric Condensate Pan Assy (350W) (Not for USA/CANADA)	29254	X		
Condensate Pan (only) (Not for USA/CANADA)	29253	X		
Condensate Pan Heater (350w) (Not for USA/CANADA)	19S678	X		
Condensate Pan (1000w)	0538249		X	X
Sheet Metal Replacement Parts Painted	All these part numbers below are painted assemblies			
Front Louvered Access Panel w/SNIII KO	291434	X	X	
Front Louvered Access Panel w/SNIII KO	291435			X
Bottom Display Shelf-White	290211	X	X	
Bottom Display Shelf-White	290212			X
Front LH Glass Brkt Assy (Metallic Silver)	294861	X	X	X
Front RH Glass Brkt Assy (Metallic Silver)	294862	X	X	X
Rear lower Panel-White	290001	X	X	

GSVM

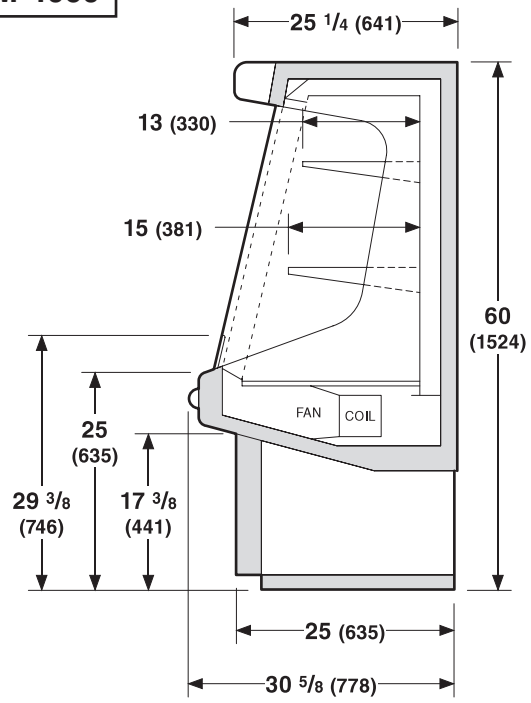


MODEL	"A"	"B"
GSVM4060	20"	40"
GSVM4072	20"	40"
GSVM5272	26"	52"

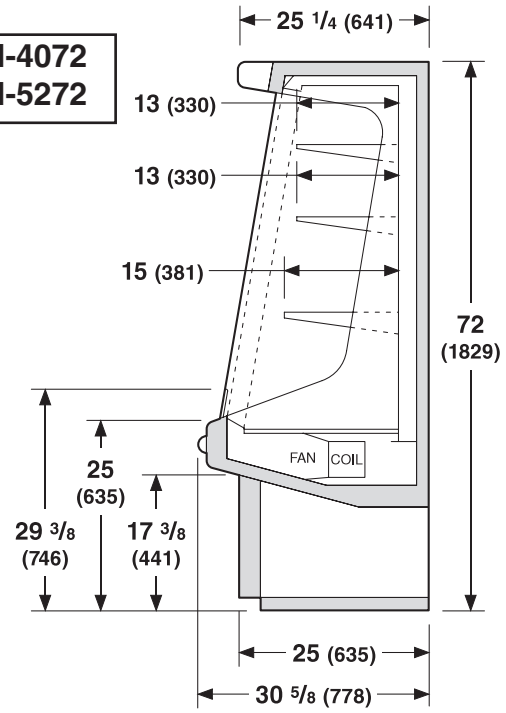
General	**GSVM-4060/4072**	**GSVM-5272**
Case Length *(Note: Includes One Pair Ends)*	40 in. (1016 mm)	52 in. (1321)
Optional End Bumpers *(One Pair)*	2 in. (51 mm)	2 in. (51 mm)
Waste Outlet		
LH end of case *(from outside of End Assembly)* to center of waste outlet	20 in. (508 mm)	26 in. (660 mm)

Dimensions shown as inches and (mm).

GSVM-4060



GSVM-4072
GSVM-5272



Note: This data is based on store temperature and humidity that does not exceed 75°F and 55% R.H. unless otherwise stated. Schedule defrost at night while lights are off.

REFRIGERATION DATA

GSVM-4060 GSVM-4072 GSVM-5272

Condensing Unit (hp) 3/4 hp (All Models)

Condensing Unit Capacity

GSVM-4060/4072	4410
GSVM-5272	4610

(Btu per hour at std. rating conditions)

DEFROST DATA

Frequency (hour)

GSVM-4060/4072/5272	8

OFFTIME
Failsafe (minutes)

GSVM-4060/4072/5272	45

Defrost Termination
Temperature Terminated

PHYSICAL DATA

Refrigerant Charge

GSVM-4060 (R134a) 33 oz	0.936 kg
GSVM-4072 (R134a) 32 oz	0.907 kg
GSVM-5272 (R404a) 46.5 oz	1.318 kg

Electrical Data

Note: These are rated values for individual components and should not be added together to determine total merchandiser electrical load.

	GSVM-4060/4072		GSVM-5272	
Number of Fans – 4W (open shell)	**2**		**3**	
	Amperes	**Watts**	**Amperes**	**Watts**
Evaporator Fans				
115V 60Hz Standard	**0.8**	**8**	**1.2**	**12**
Condensate Pan Heaters (115V) GSVM-4060 (only)	**3**	**350**		
Condensate Pan Heaters (115V) GSVM-4072/GSVM-5272			**9.0**	**1000**

Condensing Unit (115V, 1Ph, 60Hz) Standard

GSVM-4060/4072	
Compressor LRA	78.0
Compressor RLA	13.6
GSVM-5272	
Compressor LRA	70.0
Compressor RLA	15.0

Product Data

GSVM-4060	
AHRI Total Display Area [1] (*Sq Ft/Case*)	11.04 ft^2 /case (1.086 m^2 /case)
GSVM-4072	
AHRI Total Display Area [1] (*Sq Ft/Case*)	16.65 ft^2 /case (1.546 m^2 /case)
GSVM-5272	
AHRI Total Display Area [1] (*Sq Ft/Case*)	20.1 ft^2 /case (1.867 m^2 /case)

[1] Computed using AHRI 1200 standard methodology:
Total Display Area, ft^2 [m^2] / Unit of Length, ft [m]

	Nominal HP	Refrigerant Type	Volts	Run Amps	Nema Plugs	Fuse Amps	Hz / Ph
GSVM-4060	¾	R134a	115	16	5-20P	20	60/1
GSVM-4072	¾	R134a	115	15.5	5-20P	20	60/1
*GSVM-5272	¾	R134a	115	19.5	Hard Wired	25	60/1

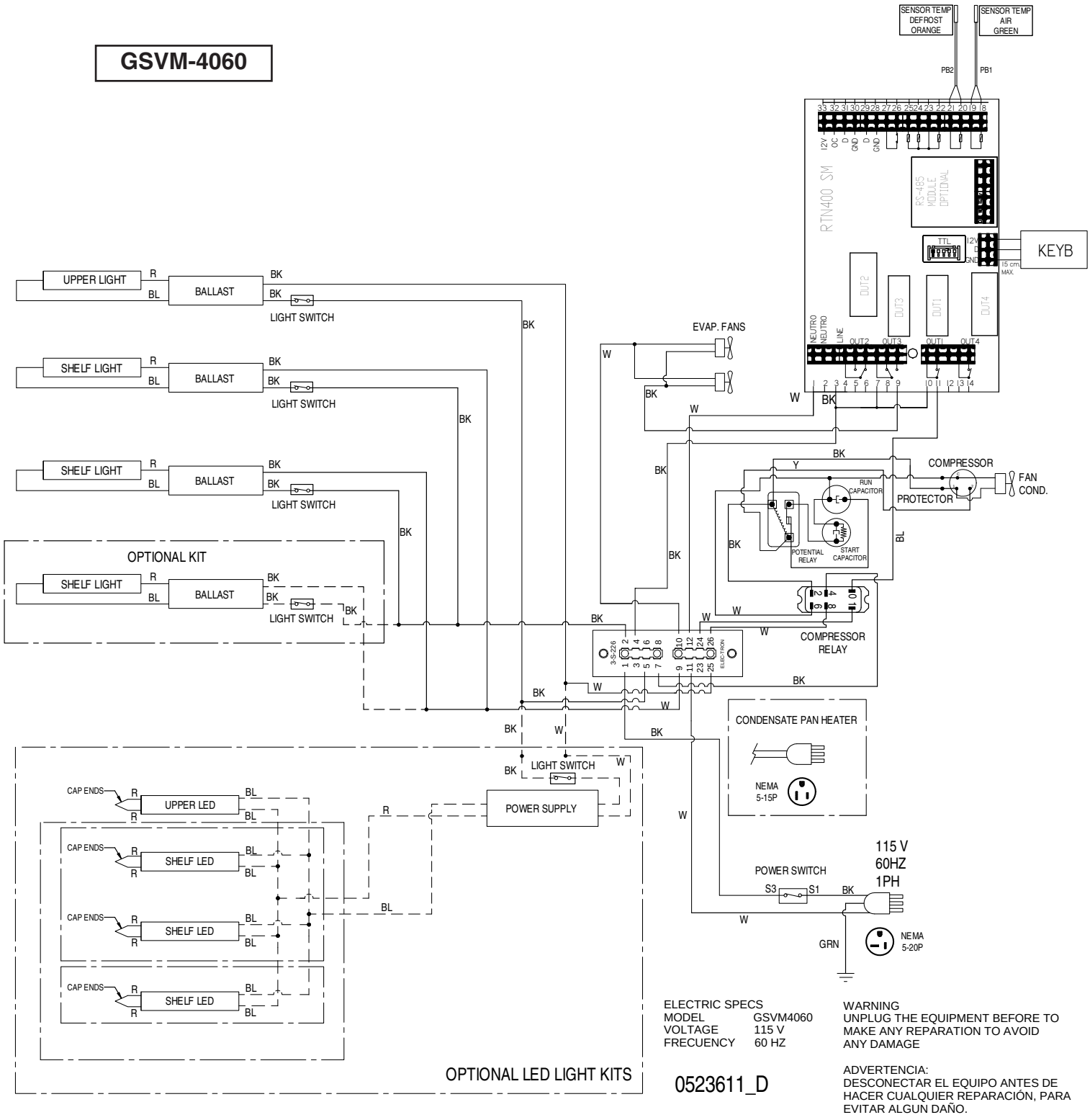
*Requires field wiring.
Optional 1,000W Hi-Humidity Condensate Pan requires a dedicated 120V/15 Amp circuit

ESTIMATED SHIPPING WEIGHT [2]

Case	*Self Contained*	*Case and Crate*	*End*
GSVM-4060	**384 lb** (174kg)	**470 lb** (213kg)	Included
GSVM-4072	**417 lb** (189kg)	**516 lb** (234kg)	Included
GSVM-5272	**531 lb** (241kg)	**648 lb** (294kg)	Included

[2] Actual weights will vary according to optional kits included.

GSVM-4060



ELECTRIC SPECS	
MODEL	GSVM4060
VOLTAGE	115 V
FRECUENCY	60 HZ

0523611_D

WARNING
UNPLUG THE EQUIPMENT BEFORE TO MAKE ANY REPARATION TO AVOID ANY DAMAGE

ADVERTENCIA:
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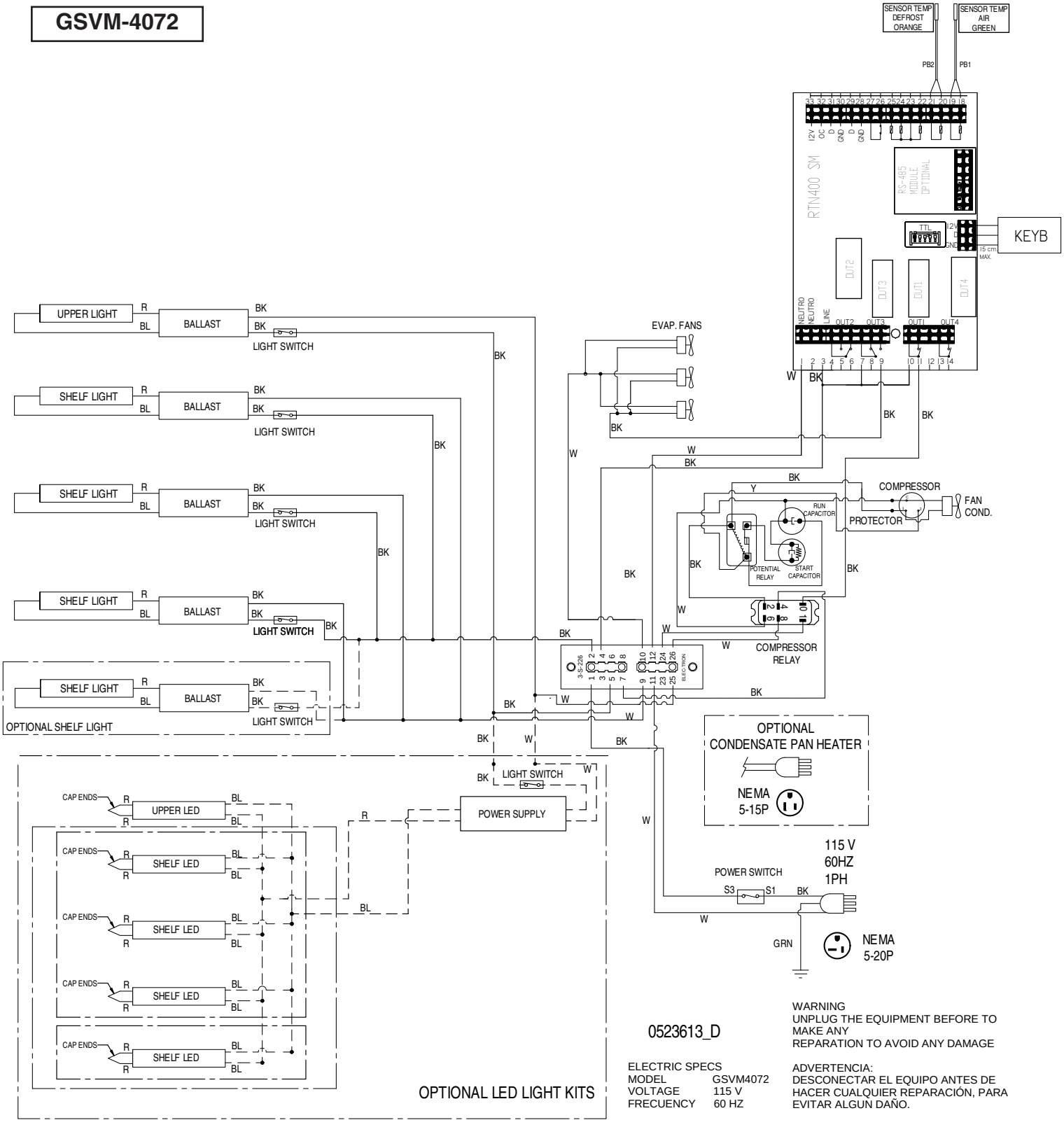
GSVM-4072


SENSOR TEMP DEFROST ORANGE
SENSOR TEMP AIR GREEN
PB2
PB1
RTN400 SM
RS-485 MODULE OPTIONAL
TTL
KEYB
15 cm MAX.
OUT2
OUT3
OUT1
OUT4
NEUTRO
LINE
UPPER LIGHT
SHELF LIGHT
SHELF LIGHT
SHELF LIGHT
OPTIONAL SHELF LIGHT
BALLAST
LIGHT SWITCH
EVAP. FANS
COMPRESSOR
FAN COND.
PROTECTOR
RUN CAPACITOR
POTENTIAL RELAY
START CAPACITOR
COMPRESSOR RELAY
OPTIONAL CONDENSATE PAN HEATER
NEMA 5-15P
115 V 60HZ 1PH
POWER SWITCH
S3
S1
GRN
NEMA 5-20P
POWER SUPPLY
CAP ENDS
UPPER LED
SHELF LED
SHELF LED
SHELF LED
SHELF LED
OPTIONAL LED LIGHT KITS
0523613_D
ELECTRIC SPECS
MODEL GSVM4072
VOLTAGE 115 V
FRECUENCY 60 HZ
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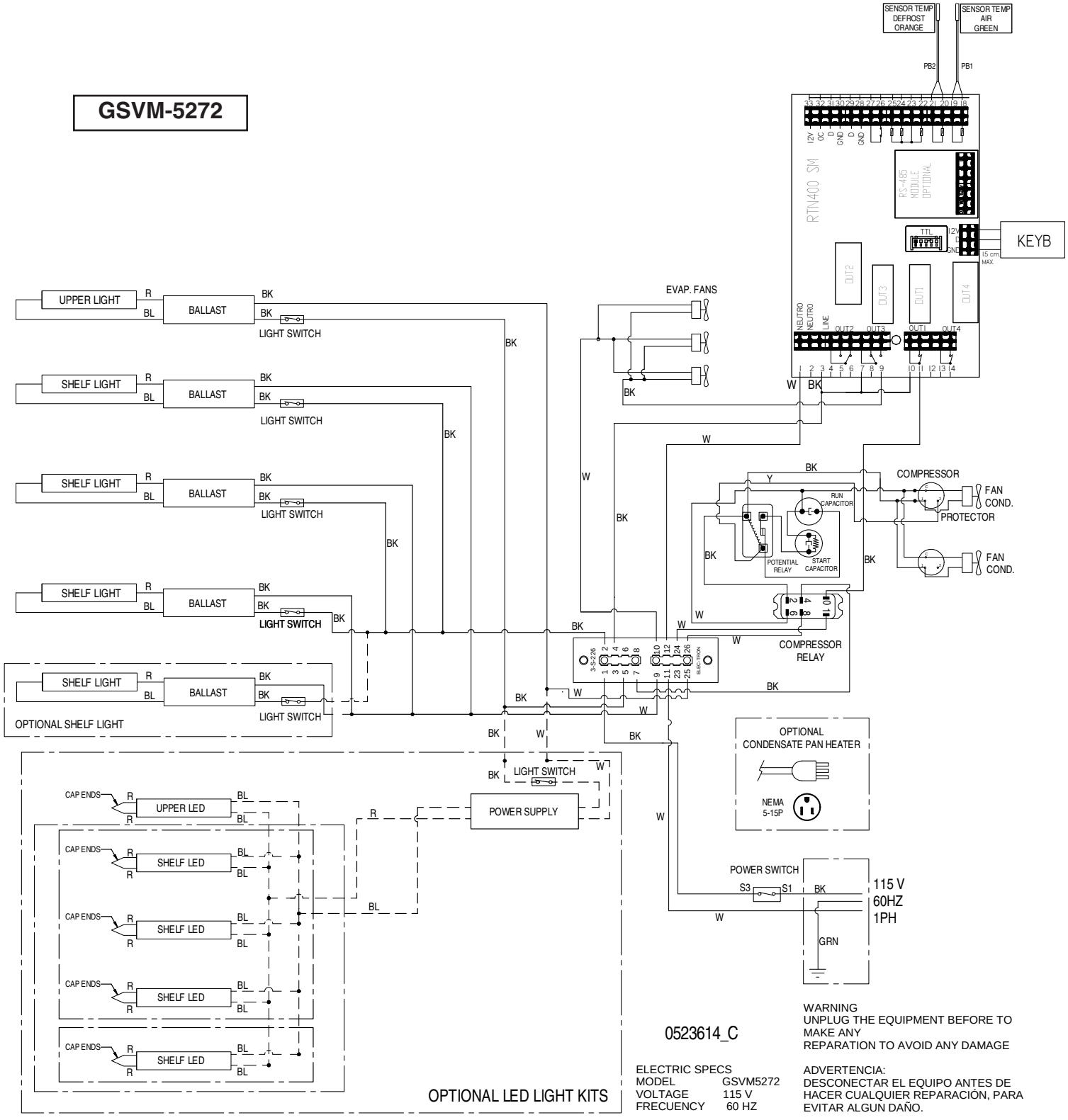
GSVM-5272



ELECTRIC SPECS

MODEL	GSVM5272
VOLTAGE	115 V
FRECUENCY	60 HZ

WARNING
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REPARATION TO AVOID ANY DAMAGE

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To obtain warranty information or other support, contact your Hussmann representative. Please include the model and serial number of the product.

Hussmann Corporation, Corporate Headquarters: Bridgeton, Missouri, U.S.A. 63044-2483 01 October 2012