

MD *Medium Temperature Self Contained Open Vertical Merchandisers*



MD-10

MD-14

Installation & Operation Manual

IMPORTANT
Keep in store for
future reference!

MANUAL - I/O SELF CONTAINED MD

P/N 2402646_H
June 2018

Spanish 0531297
French 0531298

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

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WARRANTY

REVISION HISTORY

REVISION H —

- 1. Page 3-8 & 3-9 Removed marker colors

REVISION G —

- 1. Page 1-4-Replaced controller display picture
-Replace Safenet display & cable picture
- 2. Page 3-1 to 3-5-Removed Safenet III information
- 3. Page 3-6-Change sensor colors Yellow to Orange and Black to Green
-Replaced Sensors to control connections picture
- 4. Page 3-7-Changes sensor color Yellow to Orange
-Replaced Sensors to control connections picture
- 5. Page 3-8-Replaced SafeNet III-Remove selected picture
- 6. Page A-1-Removed selected parts from table and parts
- 7. Page A-6 & A-7-Replace diagrams with new revisions attached

ORIGINAL ISSUE — AUGUST 2005

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.

**Recommended operating ambient
temperature is between
65°F (18°C) to 75°F (23.9°C).
Maximum relative humidity is 55%.**

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%. 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)

Product should always be maintained at proper temperature. This means that from the time the product is received, through storage, preparation and display, the temperature of the product must be controlled to maximize the life of the product.

BE SURE TO POSITION SELF CONTAINED MERCHANDISERS PROPERLY.

SELF CONTAINED models have vented base panels to allow air circulation through the condensing unit.

Allow for a minimum 5 in. clearance from walls, merchandisers, and any other large objects near the merchandiser's vented base panels (for self contained models). Blocking or restricting air flow will adversely affect performance and may damage the refrigeration system.

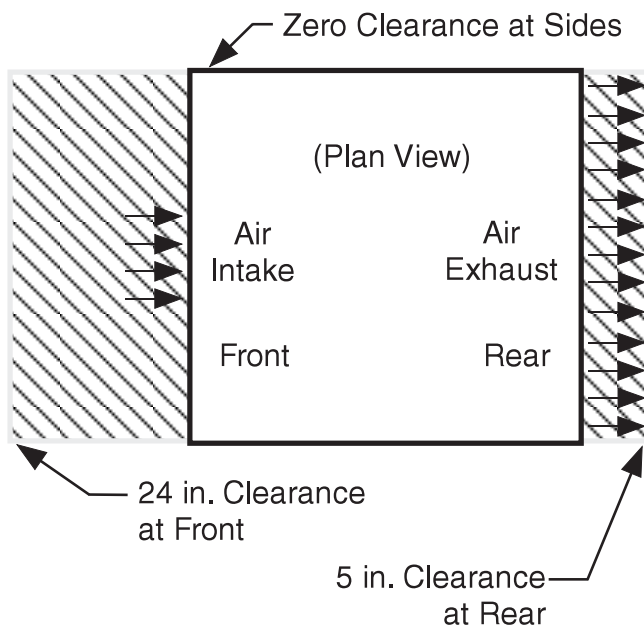
For California Businesses:


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.



MODEL DESCRIPTION

The MD models are open, vertical, medium temperature display merchandisers. They are self contained merchandisers with their own condensing unit. Each self contained model has a condensing unit that is factory installed beneath the display area of the case. The unit is ready for operation when electrical service is connected.



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:

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 EXCESSIVE 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.

Remove the top of the crate and detach walls from each other. Lift crate from the skid. Unscrew the case from the skid. The fixture can now be lifted off the crate skid. **Lift only at base of skid!** Remove any braces and/or skids attached (blanket wrapped merchandiser may have skids).

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. To remove the skid, remove screws attaching skid to the merchandiser.

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



1-4 INSTALLATION

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.

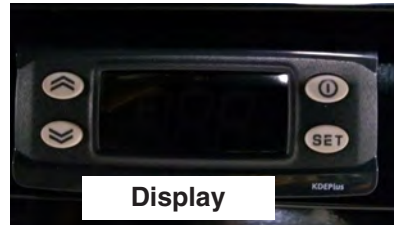
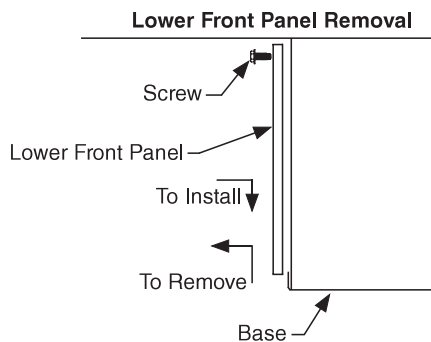
SERIAL PLATE LOCATION

The serial plate is located at the interior top left end. It contains all pertinent information such as model, serial number, amperage rating, refrigerant type and charge.



REFRIGERATION UNIT ACCESS

The lower front panel may be removed by lifting the panel straight upward and over the tabs on which it is hanging. In a self contained merchandiser, two screws will have to be removed from either end of the panel. 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 on self contained merchandisers.



Lift up and out to remove access panel



Controller (Rear)

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.

ELECTRICAL / REFRIGERATION

MERCHANDISER ELECTRICAL DATA

Refer to merchandiser 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. Self contained models are electrical cord connected at the electrical box.

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.

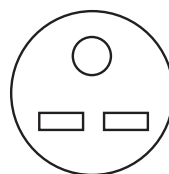
- Always use a dedicated circuit with the amperage stated on the unit.
- Plug into an outlet designed for the plug.
- Do not overload the circuit
- Do not use long or thin extension cords. Never use adapters.
- If in doubt, call an electrician.



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.



NEMA 6-15P
Receptacle
MD

Self-contained models have factory-installed power cords connected at the electrical box.

POWER SWITCH

The main power switch is located in the electrical box. This switch controls all power to the case. This switch must be in the OFF position, and the electrical cord must be unplugged before starting any cleaning or service work.



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.

WARNING

Refrigeration lines are under pressure. Refrigerant must be recovered before attempting any connection or repair.

CAUTION

When brazing pipes, be sure to use the insulation blanket shipped with the merchandiser to prevent damage to the metal merchandiser bottom.

WATER OUTLET AND WATER SEAL

The condensate water outlet is located at the front corners of the evaporator coil area. The outlet has a factory installed, external water seal.

For self contained models, this water seal drains into the condensate evaporator pan located beneath the merchandiser.

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.

WARNING

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

START UP / OPERATION MD-10 & MD-14

CONTROLLER OPERATION

The electronic controller is located in the cassette compartment. The controller comes factory set, and is ready for use. The front grille must be removed in order to access this control. When removing the grille for this operation or for condenser cleaning, care must be taken not to damage the display interface cable. It may be unplugged during this task.

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 pre-programmed 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:



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

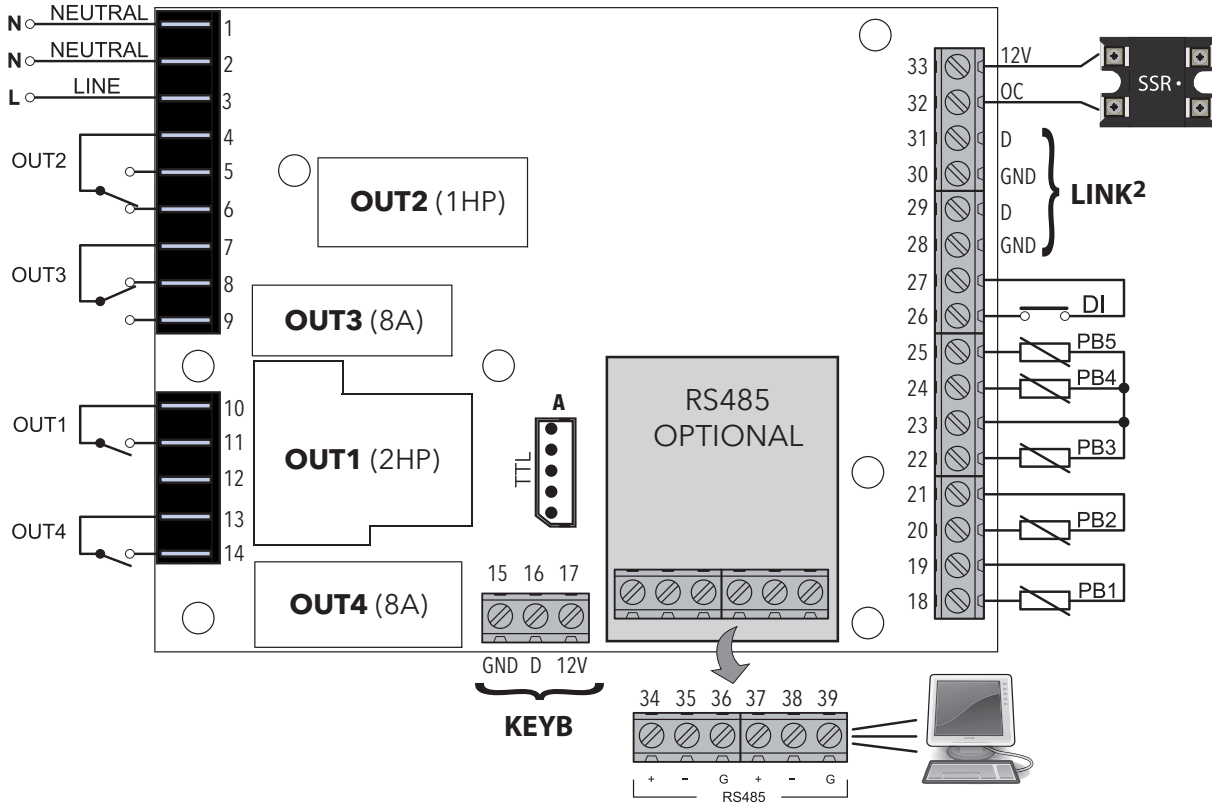
Electromagnetic compatibility:	The device complies with Directive 2004/108/EC
Safety:	The device complies with Directive 2006/95/EC
Food Safety:	The device complies with standard EN13485 as follows: <ul style="list-style-type: none"> • Suitable for storage. • Application: air. • Climate range A • measurement 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 LINK ² . Connection 1 - local area network.
10	OUT1 Shared Terminal	30-31 LINK ² . 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 readout	Permanently on	°F setting (dro = 1)
			OFF	otherwise
7		AUX	Permanently on	Aux output active and/or light on
			Blinking	Deep cooling on
			OFF	otherwise
8		°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

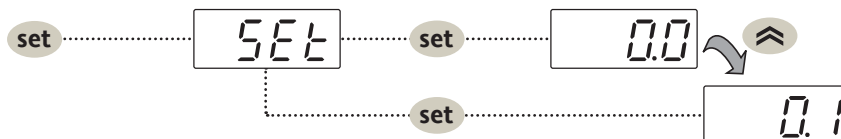
The following table summarizes the function of each key:

No	Key	Action		
		Pressed and released	Press for at least 5 secs	Start-up
1		<ul style="list-style-type: none"> • Scrolls through menu items • Decreases values 	Activates the Manual Defrost function (from outside menus).	---
2		<ul style="list-style-type: none"> • Scrolls through menu items • Decreases values 	Function can be configured by the user (from outside menus). (see parameter H32)	---
3		<ul style="list-style-type: none"> • Returns to the previous menu level • Confirms parameter value 	Activates the Stand-by function (from outside menus).	---
4		<ul style="list-style-type: none"> • 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 **UP** and **DOWN** 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:

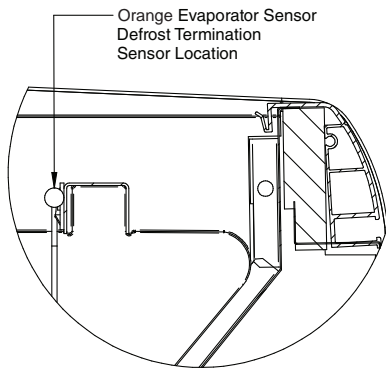
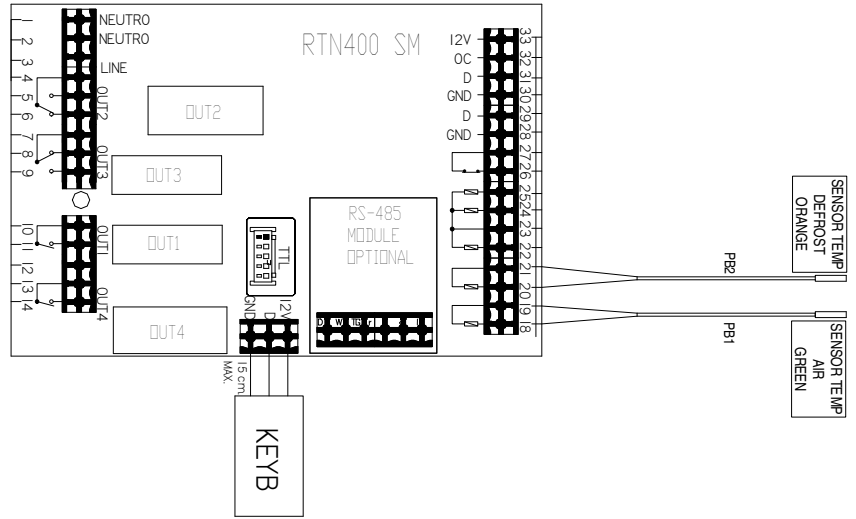
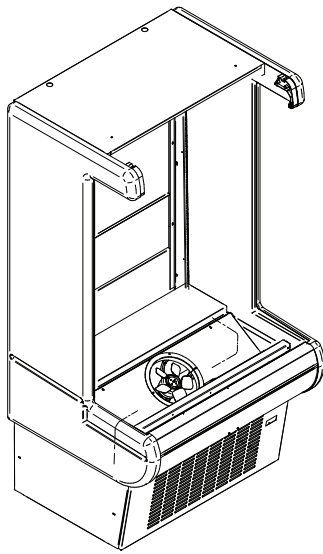
- **H11** = DOWN key configuration
- **H33** = ESC key configuration

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

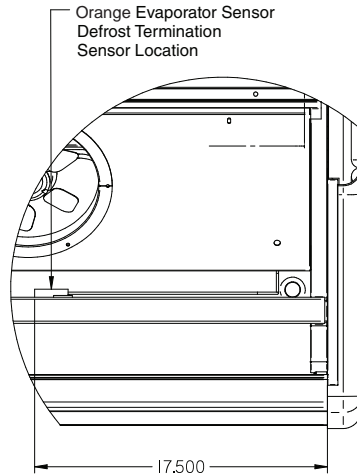
H32/H33 value	Function to enable
0	disabled
1	defrost
2	reduced set
3	Light
4	Energy saving
5	AUX
6	Stand-by
7	Deep cooling cycle
8	Start/end defrost

Typical Sensor to Control Configuration

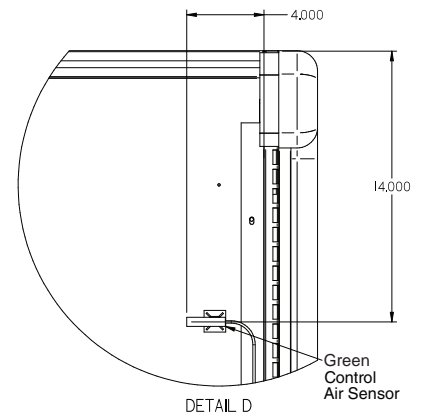
MD-10



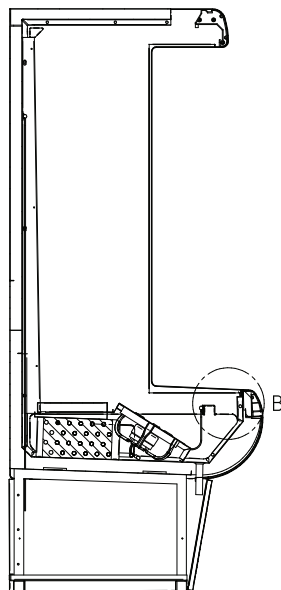
DETAIL B



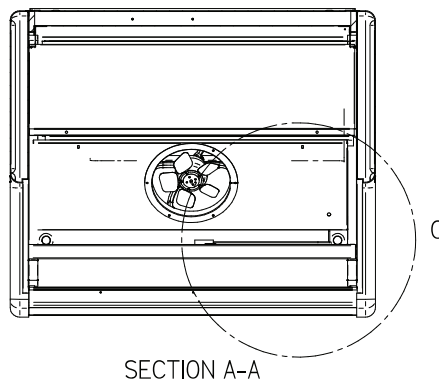
DETAIL C



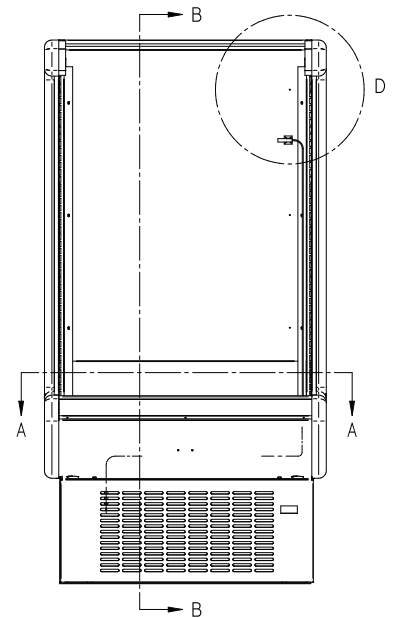
DETAIL D



SECTION B-B

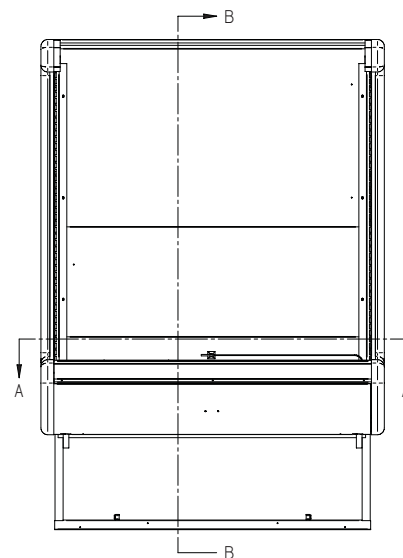
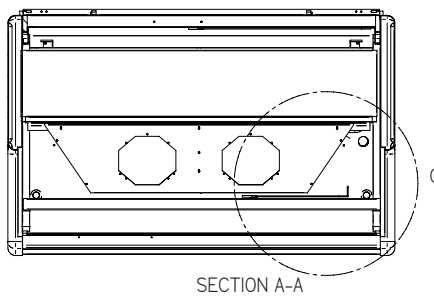
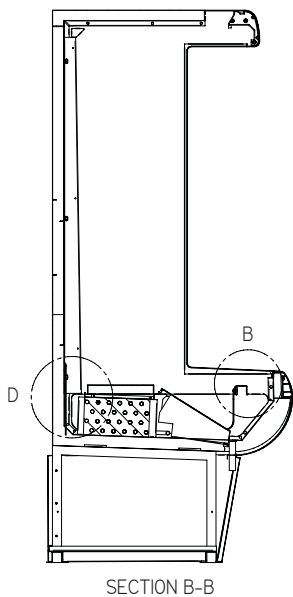
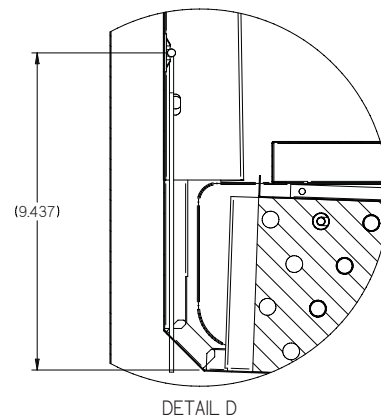
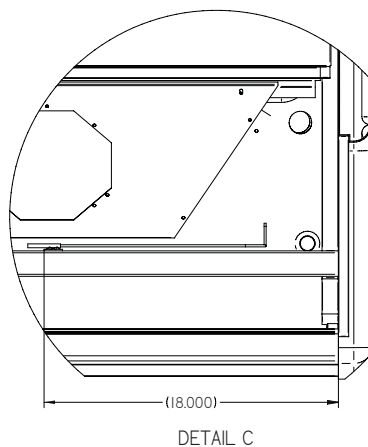
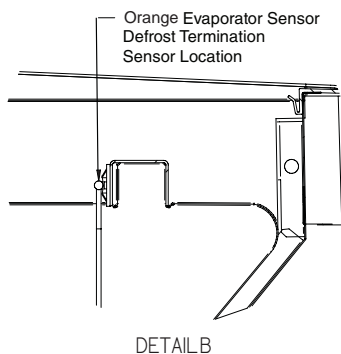
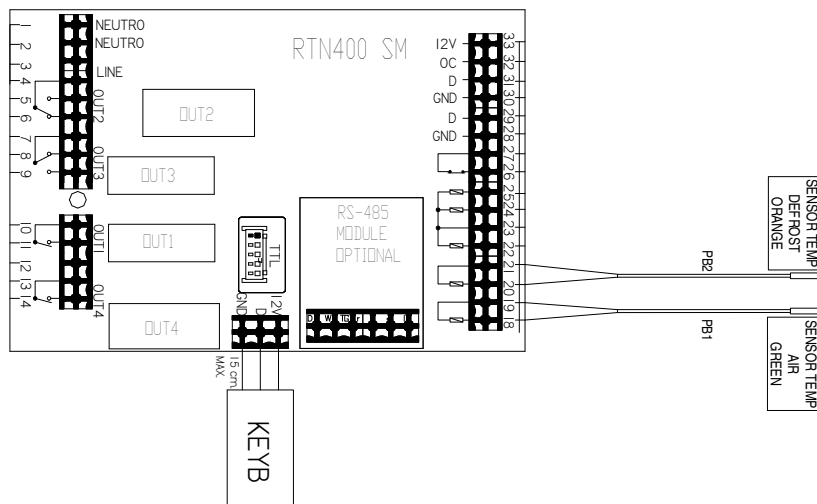
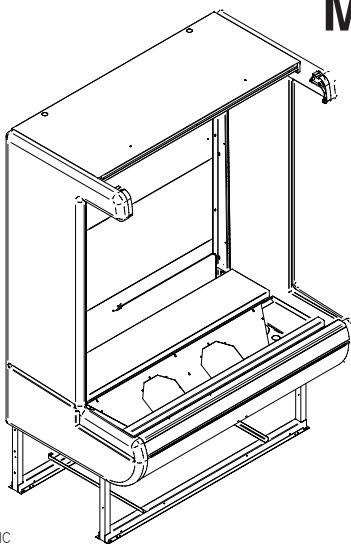


SECTION A-A



Typical Sensor to Control Configuration

MD-14



0522934 B

CONTROLS and ADJUSTMENTS

Refrigeration Controls			Defrost Controls			
Model	Product Application	Discharge Air Temperature	Defrost Frequency (per day)	Type of Defrost	Termination Temperature	Failsafe Time (Minutes)
MD-10 MD-14	Medium Temp. (Dairy, Deli)	24° F to 32° F	24	Off Time	50° F	10 Min.

1. The controller controls refrigeration temperature. This is factory installed in the control panel mounted on the merchandiser's fascia. Measure discharge air temperatures at the center of the louvers.

Defrosts are time initiated and temperature terminated for self contained models. The defrost setting is factory set as shown above.



It is the contractor's responsibility to install merchandiser(s) in accordance with all local building and health codes.

! 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.



Rear of Controller

SHELVES

MD models are equipped with four shelves. Heights are adjustable in one-inch increments. Product shelves should be loaded so that the product does not extend over the front edge of the shelf. Product loaded over the edge will interfere with air circulation in the cabinet. It is also desirable to leave a small space between the rear interior wall and the product on the shelves, to allow air to enter the cabinet interior through the perforations in the rear wall. The shelves are rated for **130 pounds each load capacity**.

Install the shelf support brackets first to the desired height before installing each shelf. Place the rear of the bracket in the desired slot. Raise the front of the brackets towards the rear of the cabinet. Once the ends are in the slot, rotate the bracket forward, locking it in place. Place the shelf on the bracket. **The shelves are not to be slanted. They must remain in the horizontal position.**

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 DISCHARGE AIR LOUVERS.

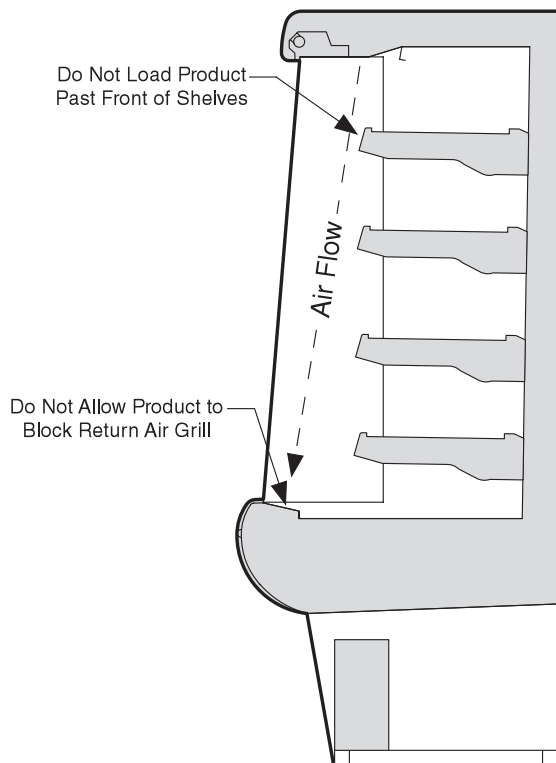
STOCKING

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

Allow merchandiser 24 hours to operate before loading product.

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 Block Merchandiser Air Flow

THERMOMETER

The thermometer is located next to the discharge in the middle of the merchandiser. The reading is in C° / F°.

LIGHTING

Interior lighting is provided by a cool, white fluorescent bulb. The bulb is sleeved to maintain proper heat around the bulb for maximum light intensity and to protect the product in case of breakage. The bulb can be replaced without removing shelves or product. To replace the bulb, twist the bulb and slide the prongs clear of the lamp holder. Remove the protective shield from the old bulb, and put it on the new bulb. Make sure the prongs on the bulb twist and lock into place when placing the bulb back in the holders.

Optional LED lighting is offered for MD merchandisers. LEDs are held in place with clips. The protective light shield is a single piece.

NIGHT COVER

All MD models come equipped with a night cover as a standard feature. The handle for the cover is located near the lamp, grasp the handle and pull downward until enough of the cover has been exposed, allowing the handle to be placed over the retainer located on the lower panel. If a night cover must be replaced, follow these steps: disconnect power to the cabinet. On the top exterior of the cabinet, there is a perforated metal cover. Lower the lamp fixture as if you were replacing the ballast. Lift the left retainer. Pull the night cover towards you, and slide to left. Install the new cover in reverse order.



WARNING

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



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>

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:

- 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.
- Disconnect electrical power before cleaning.**
- 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.**
- Take care to minimize direct contact between fan motors and cleaning or rinse water.
- Do NOT flood merchandiser with water. **NEVER INTRODUCE WATER FASTER THAN THE WASTE OUTLET CAN REMOVE IT.**



CAUTION

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

SELF CONTAINED MODELS EMPTY INTO A CONDENSATE 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.



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 FAN PLENUM

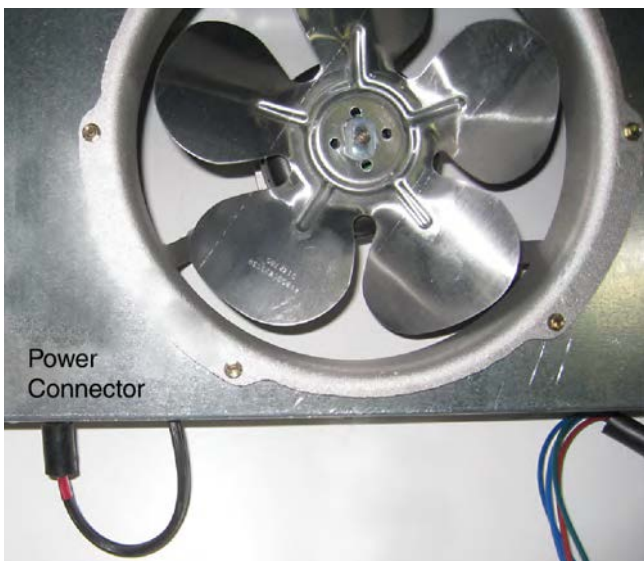
To facilitate cleaning, the fan plenum is hinged.

After cleaning be sure the plenum is properly lowered into position OR **PRODUCT LOSS WILL RESULT** due to improper refrigeration.



CAUTION

SHUT FANS OFF DURING CLEANING PROCESS.



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.



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.



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 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.



CLEANING EVAPORATION PAN

(SELF CONTAINED ONLY)

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.

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.



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.



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)

SERVICE

REPLACING FAN MOTORS AND BLADES

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 EMBOSSED (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. Turn off power to the merchandiser.
2. Remove bottom display pans.
3. **Disconnect fan from wiring harness.**
4. Remove fan blade.
5. Lift fan plenum and remove screws holding bottom of motor to fan basket.
6. Replace fan motor and blade.
7. Lower fan plenum.
8. Reconnect fan to wiring harness.
9. Turn on power.
10. Verify that motor is working and blade is turning in the correct direction.



WARNING

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

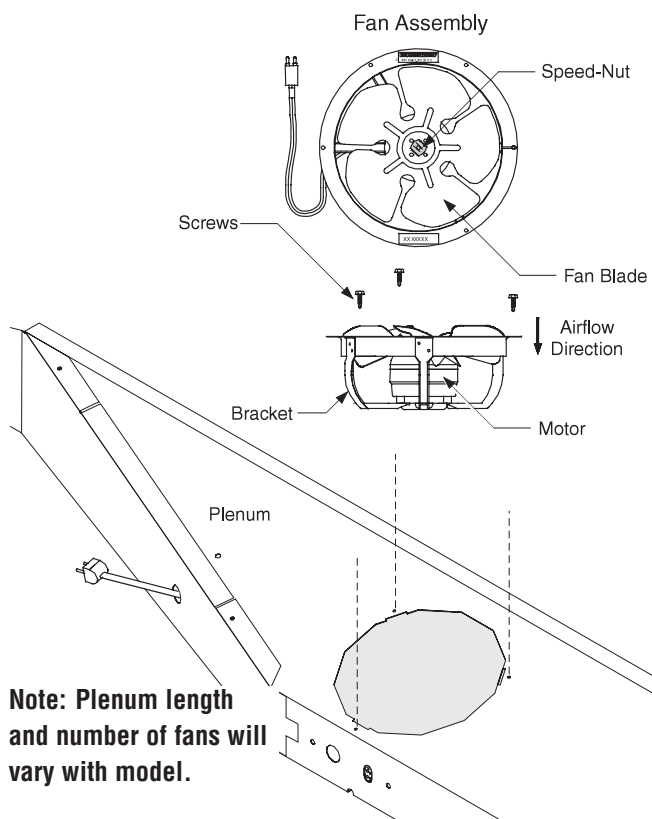


WARNING

— 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.

11. Close air gaps under fan plenum. Warmer air moving into refrigerated air reduces effective cooling. If the plenum does not rest against the case bottom without gaps, apply foam tape to the bottom of the fan plenum to reduce improper air movement. Use silicone sealant to close other gaps.
12. Reinstall display pans. Bring merchandiser to operating temperature before restocking.



MD Open Vertical Merchandisers

REPLACING ELECTRONIC BALLASTS / LED POWER SUPPLIES

MD Merchandisers may be equipped with fluorescent or LED lights. Fluorescent lights are powered by electronic ballasts. LED lights are powered by power supplies. The procedure to replace these parts is similar.

Canopy Ballast or Power Supply

The canopy ballast or power supply is located in the electrical box on top of the MD case.

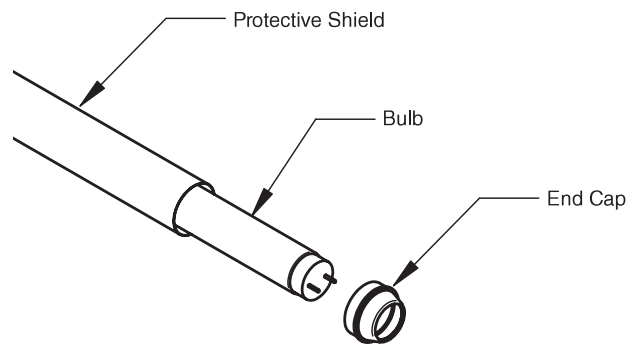
To gain access:

1. **DISCONNECT THE ELECTRICAL POWER TO THE MERCHANDISER.**
2. Remove screws attaching the raceway cover, then remove cover.
3. Service or replace ballast/power supply as required. Reassemble items as they were originally installed.
4. Reconnect the electrical power.

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 the display lamp.



REPLACING LED FIXTURES

The switch under the display lamp cover operates the display lamp. For LEDs, this protective shield is incorporated as part of the LED fixture. Rotate the LED fixture to release it from the lamp harness.

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.

Remove Plastic Pins Attaching Display Lamp

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>

APPENDIX A — TECHNICAL DATA

Models		MD-10UL	MD-14UL
Standard Parts			
Description	Part Number		
LH End (Beige) less glass	130721	X	X
RH End (Beige) less glass	130722	X	X
LH End (Black) less glass	0530442	X	X
RH End (Black) less glass	0530443	X	X
Plexi glass end insert	1006104	X	X
Clip end glass (Beige)	0522940	X	X
Clip end glass (Black)	0530681	X	X
Front Bumper (RED) 37.75"	1006227	X	
Front Bumper (RED) 51.5"	1006223		X
Evaporator Fan Motor (Motor 12W,basket,less blade)	0461804000	X	
Evaporator Fan Motor (Motor 5W,basket& blade)	0505079		X
Evaporator Fan Blade	0142780002	X	
Evap Fan Harness	0523592	X	
Evap Fan Harness	1804163		X
Sensor NTC 4 mts Green	3023554	X	X
Sensor NTC 4 mts Orange	3031571	X	X
Control Eliwell RTN400	3023537	X	X
Control Display KDE	3023552	X	X
Display cable 5 meter	3023553	X	X
Condensate pan heater relay SPDT NC 208V	0342599002	X	X
Compressor Relay (T92P7A22-240)	1804241	X	X
Power Switch	03S422	X	X
Thermometer (horizontal)	1700559000	X	X
Front Plexiglass	0520750	X	
Front Plexiglass	0520751		X
Night Curtain	35S0841	X	
Night Curtain	35S0842		X
Honeycomb	0520740	X	
Honeycomb	0520500		X
Power Cord NEMA 6-15P	0508528	X	X
Flourscent light (Canopy) F18T8	06S149	X	
Flourscent light (Canopy) F032/841 32W	1803337		X
Ballast	06S187	X	X
Lamp Holder	06S188	X	X
Safety Sleeve	06S07417	X	
Safety Sleeve	06S07414		X
Light Switch	1801241000	X	X
LED Light 3'	0515963	X	
LED light 4'	0515965		X
LED Power Supply	0518898	X	X
LED lamp Holders	1803376	X	X
Light Clips (LED)	0518906	X	X

Models		MD-10UL	MD-14UL
Refrigeration			
Condensing Unit Assy (134a) Complete w/ condensate pan	0521330	X	
Compressor (NJ6226Z) 208/230/60	2000555	X	X
Condensing Unit Assy (134a) Complete w/ condensate pan	0521156		X
Condenser Coil	E108812001	X	
Condenser Coil	E108814001		X
Drier (C052-S)	1700481000	X	X
Condenser Fan Motor	21S071	X	
Condenser Fan Blade	0500354	X	X
Condenser Fan Motor	0521460		X
Assembly Evaporator Coil (Complete)	130421000	X	
Assembly Evaporator Coil (Complete)	130422000		X
Evaporator coil	E108813001	X	
Evaporator coil	E108815001		X

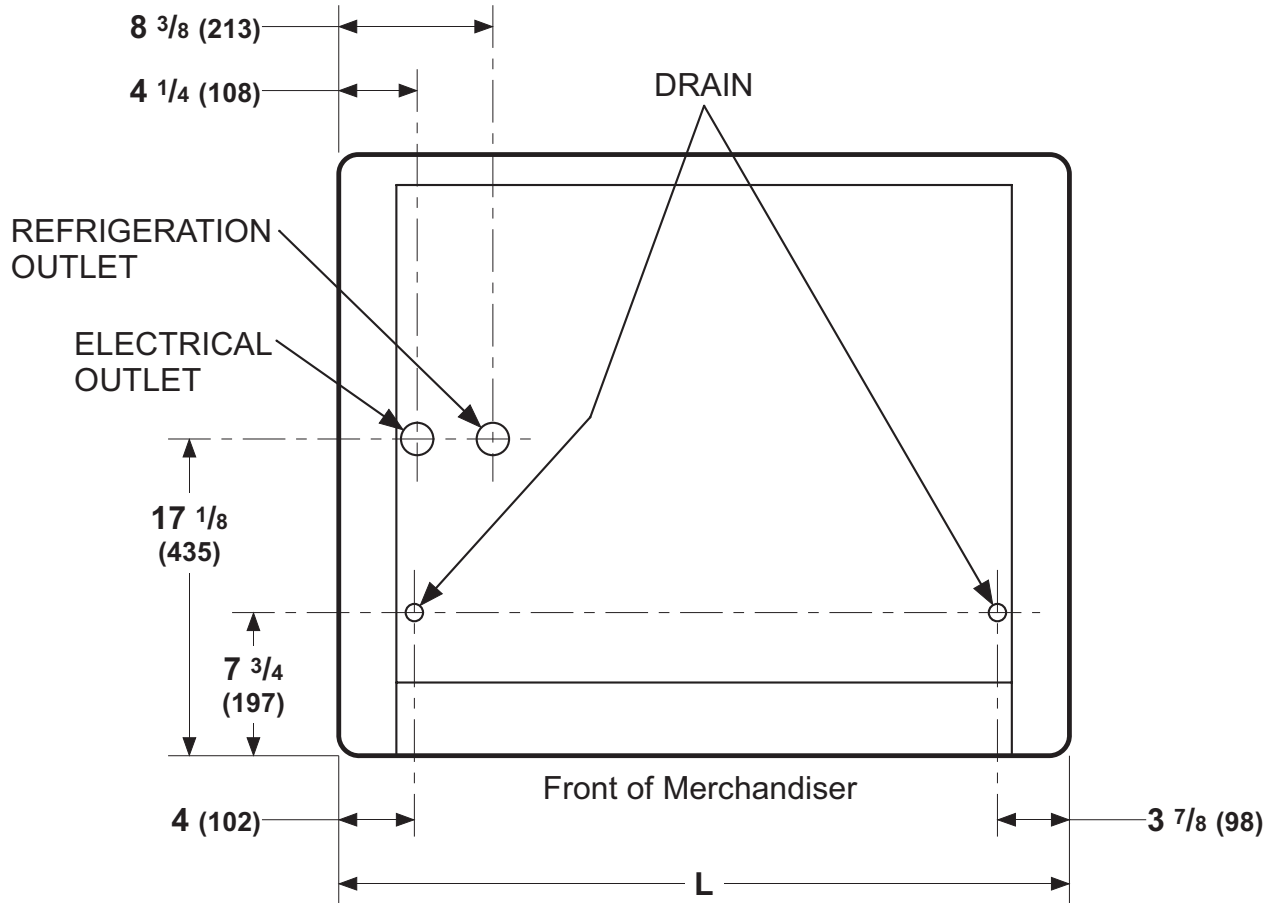
Models		MD-10UL	MD-14UL
Condensate Pan			
Electric Condensate Pan Assy (w/heater & float switch)	1H11037001	X	X
Condensate Pan Heater (750w)	1H07734	X	X
Float Switch	1804342	X	X

Models		MD-10UL	MD-14UL
Sheel Metal Replacement Parts Painted			
Front Access Panel	0539989	X	
Front Access Panel	0539990		X
LH End Panel -Base	0539537	X	X
RH End Panel -Base	0539538	X	X
Rear Base Panel- not to be painted	0210158	X	
Rear Base Panel- not to be painted	0210159		X
Shelf Assembly (includes shelf,brackets and PTM)	130761	X	
Shelf Assembly (includes shelf,brackets and PTM)	130762		X
Shelf Bracket	13062	X	X
Shelf	130451	X	
Shelf	130452		X
PTM	30S8151	X	
PTM	30S8152		X
Bottom Back Shelf	130221	X	
Bottom Back Shelf	130222		X
Bottom Front Shelf	0210214	X	
Bottom Front Shelf	0210215		X

All these part numbers are painted assemblies

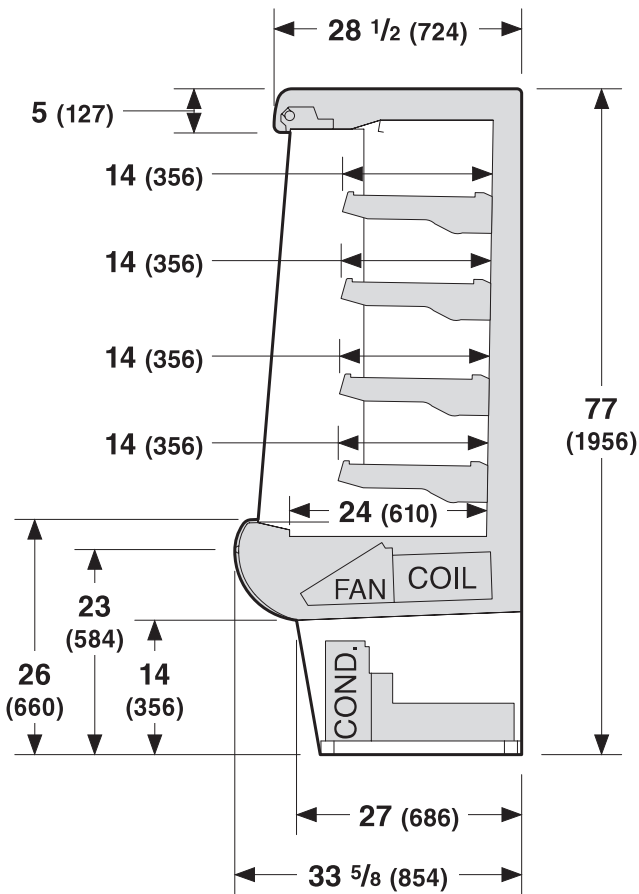
MD — Plan View

Dimensions shown as inches and (mm).



Model	Length
MD-10	39"
MD-14	52"

MD — Cross Section



REFRIGERATION DATA

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.

MD

Condensing Unit (hp)

MD-10	1
MD-14	1

Condensing Unit Capacity

MD-10	7376
MD-14	7376

(Btu/hr at std. rating conditions)

DEFROST DATA

Frequency (hr) 1

OFFTIME

Failsafe (minutes) 10

Defrost Termination Temperature 50°F

PHYSICAL DATA

Refrigerant Charge

MD-10 (R134a)	22.928 oz	0.65 kg
MD-14 (R134a)	36.261 oz	1.028 kg

Electrical Data

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

	MD-14		MD-10	
Number of Fans – 5W	2		1	
	Amperes	Watts	Amperes	Watts
Evaporator Fans				
208-230V 60Hz Standard	0.6	10	0.7	12
Condensate Pan Heaters (230V)	3.6	750	3.6	750
Condensing Unit (208/230V, 1Ph, 60Hz) Standard				
	MD-10		MD-14	
Compressor LRA	41			41
Compressor RLA	9.5		9.5	

Product Data

MD-10

AHRI Total Display Area ¹ (Sq Ft/Case) 11.7 ft² /case (3.57 m² /case)

MD-14

AHRI Total Display Area ¹ (Sq Ft/Case) 15.79 ft² /case (4.81 m² /case)

¹ Computed using AHRI 1200 standard methodology:
Total Display Area, ft² [m²] / Unit of Length, ft [m]

MODEL NUMBER	LENGTH	DEPTH	HEIGHT	COMPRESSOR NOMINAL HORSEPOWER	REFRIG TYPE	CASE VOLTS	RUN AMPS	FUSE AMPS	NEMA PLUG	APPROX WEIGHT
MD-10	39 in.	33 ⁵ / ₈ in.	77 in.	1	R-134a	208-230/60/1	10.3 Amps	15	6-15P	368 lbs.
MD-14	52 in.	33 ⁵ / ₈ in.	77 in.	1	R-134a	208-230/60/1	12 Amps	15	6-15P	467 lbs.

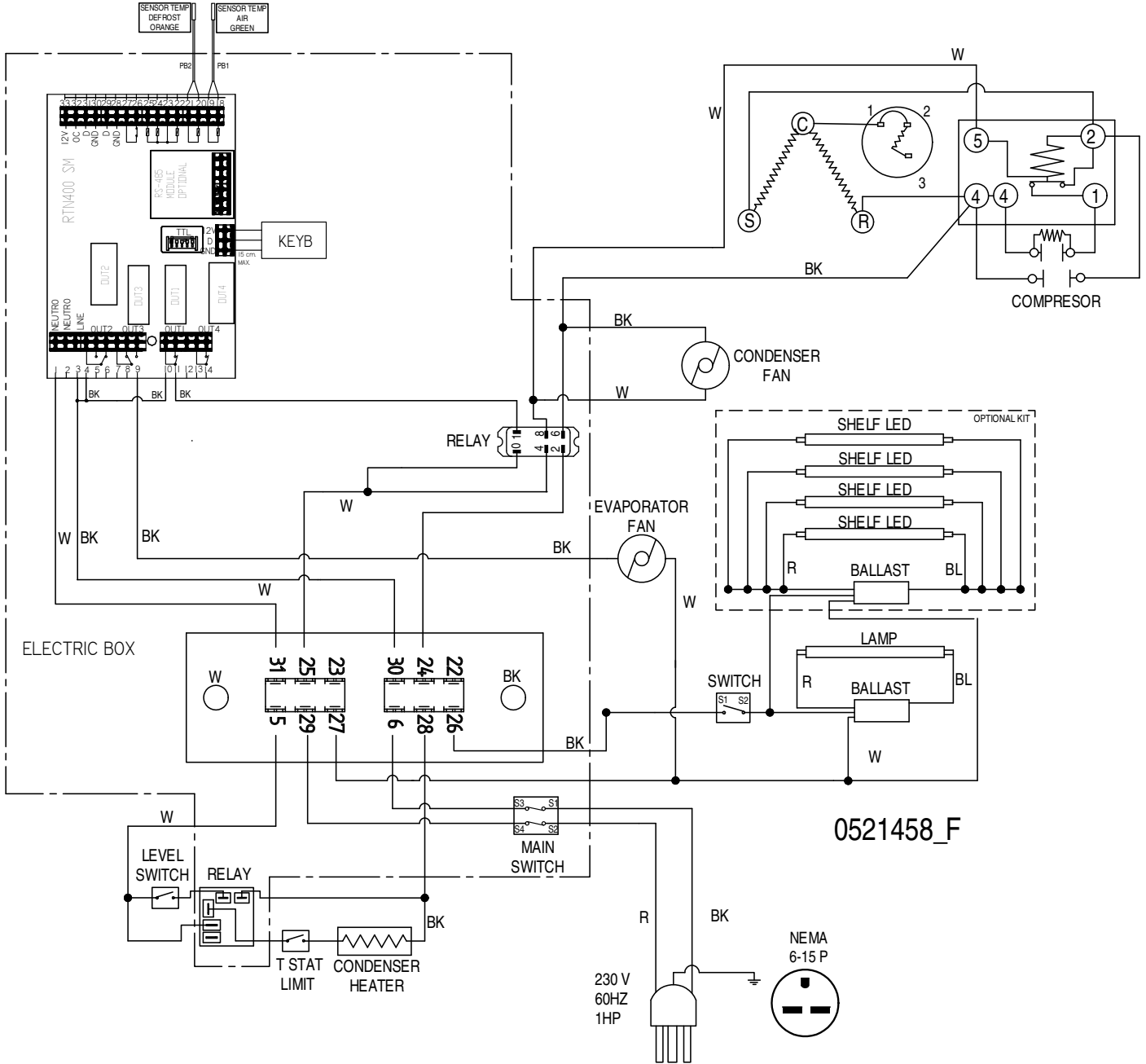
ELECTRIC SPECS

MODEL MD10UL
 VOLTAGE 208-230 V
 FREQUENCY 60 HZ
 COMPRESSOR NJ6226Z EMBRACO

MD-10

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

ADVERTENCIA:
 DESCONECTAR EL EQUIPO ANTES DE HACER CUALQUIER REPARACIÓN, PARA EVITAR ALGUN DAÑO.



0521458_F

WARNING

All components must have mechanical ground, and the merchandiser must be grounded.

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS

R = Red Y = Yellow G = Green BL = Blue BK = Black W = White

● = 120V POWER ○ = 120V NEUTRAL ⏏ = FIELD GROUND ⏏ = CASE GROUND

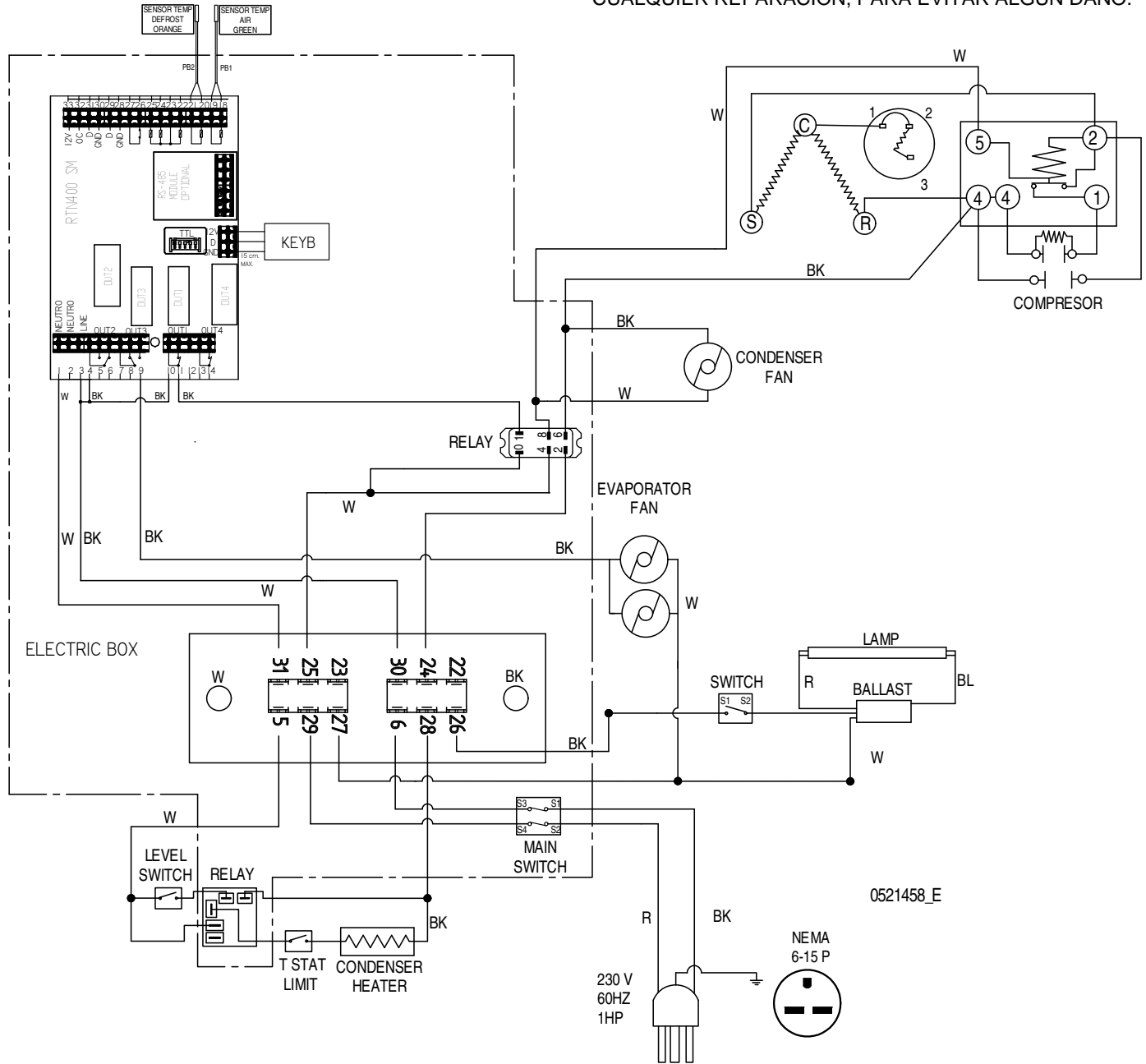
MD-14

ELECTRIC SPECS

MODEL MD14UL
 VOLTAGE 208-230 V
 FRECUENCY 60 HZ
 COMPRESSOR NJ6226Z EMBRACO

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

ADVERTENCIA:
 DESCONECTAR EL EQUIPO ANTES DE HACER CUALQUIER REPARACIÓN, PARA EVITAR ALGUN DAÑO.



0521458_E

WARNING

All components must have mechanical ground, and the merchandiser must be grounded.

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS

R = Red Y = Yellow G = Green BL = Blue BK = Black W = White

● = 120V POWER ○ = 120V NEUTRAL ⊥ = FIELD GROUND m = CASE GROUND



HUSSMANN[®]

**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