HUSSMANN®/CHINO

DBP, DBRP 01, 03

ISLAND PRODUCE

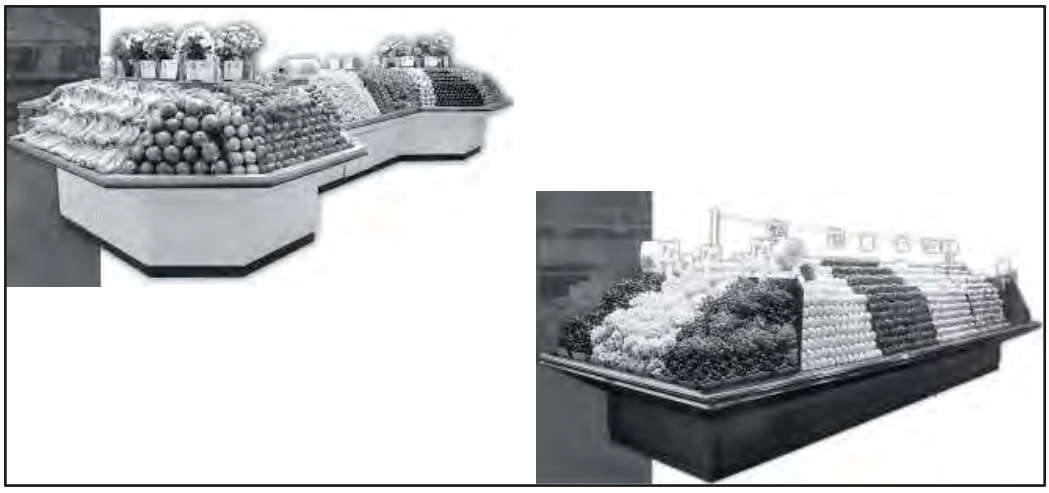
Installation & Operation Manual

REV. 0823

HUSSMANN®

DBP, DBRP 01, 03

ISLAND PRODUCE



INSTALLATION & OPERATION GUIDE

General Instructions

Table of Contents

This Booklet Contains Information on:
DBP, DBRP 01, 03 Island Produce Cases

Shipping Damage

All equipment should be thoroughly examined for shipping damage before and during unloading.

This equipment has been carefully inspected at our factory and the carrier has assumed responsibility for safe arrival. If damaged, either apparent or concealed, claim must be made to the carrier.

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. The carrier will supply necessary claim forms.

Concealed Loss or Damage

When loss or damage *is not apparent until after equipment is uncrated*, a claim for concealed damage is made. Make request in writing to carrier for inspection within 15 days, and retain all packaging. The carrier will supply inspection report and required claim forms.

Shortages

Check your shipment for any possible shortages of material. If a shortage should exist and is found to be the responsibility of Hussmann Chino, *notify Hussmann Chino*. If such a shortage involves the carrier, *notify the carrier immediately*, and request an inspection. Hussmann Chino will acknowledge shortages within ten days from receipt of equipment.

Hussmann Chino Product Control

The serial number and shipping date of all equipment has been 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, in order to provide the customer with the correct parts.

Keep this booklet with the case at all times for future reference.

HUSSMANN®/CHINO
A publication of HUSSMANN® Chino
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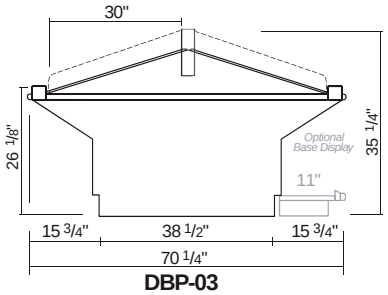
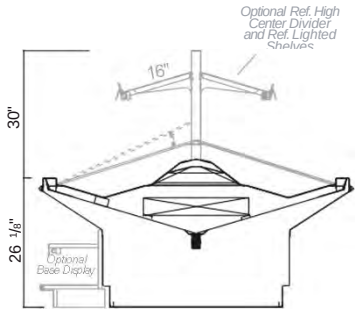
This equipment is to be installed to comply with the applicable NEC, Federal, State, and Local Plumbing and Construction Code having jurisdiction.

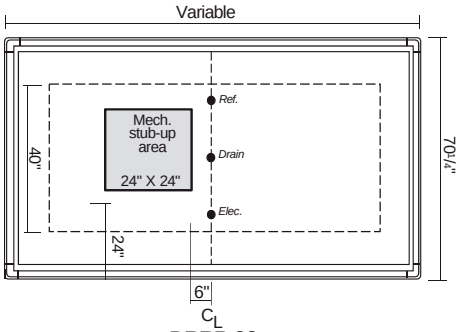
Cut and Plan Views



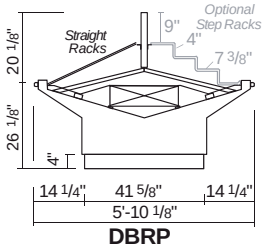
DBP-03
Standard Section
Produce
Scale = 3/8"



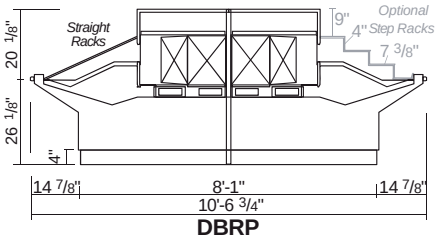
DBRP-03
Shown with Optional
Ref. High Center Divider and
Refrigerated Lighted Shelves
Scale = 3/8"



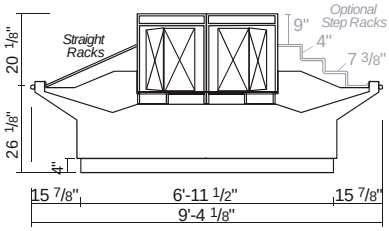
DBRP-03
Plan View
NOTE: Mechanical Stub-Up Areas will vary with size of case
Scale = 1/4"



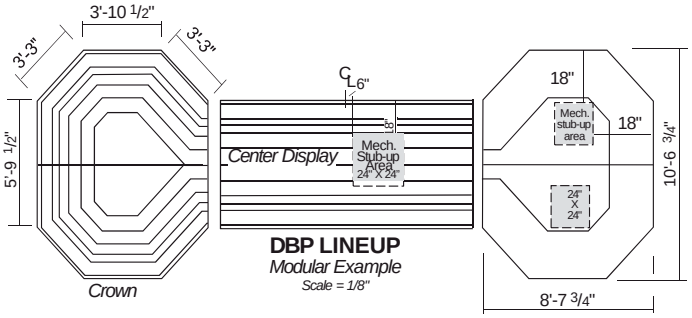
DBRP
Straight Section
Scale = 1/4"



DBRP
Crown Section
Scale = 1/4"

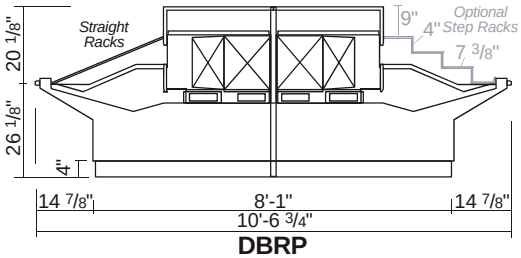


DBRP
Octagon Section
Scale = 1/4"

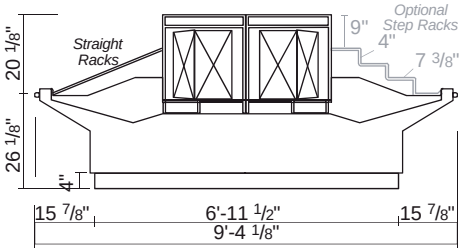


DBP LINEUP
Modular Example
Scale = 1/8"

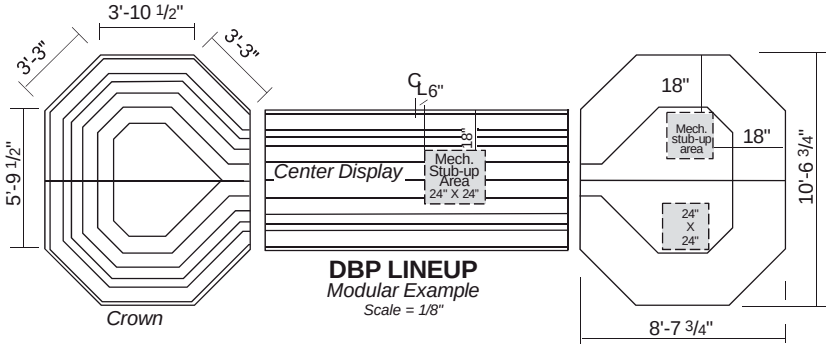
Cut and Plan Views (Cont'd)



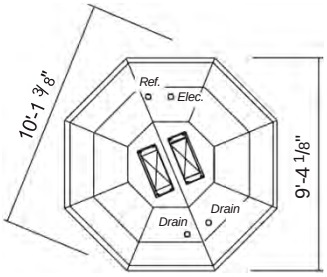
DBRP
Crown Section
Scale = 1/4"



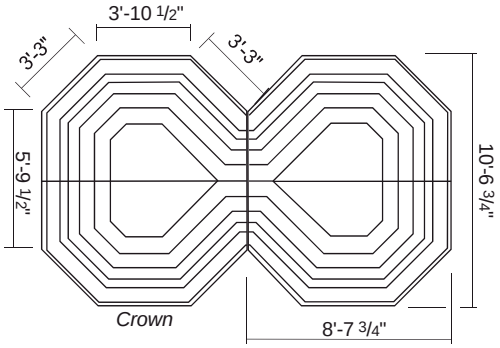
DBRP
Octagon Section
Scale = 1/4"



DBP LINEUP
Modular Example
Scale = 1/8"



DBRP-OCTAGON
Plan View
Scale = 1/4"



DOUBLE DOG PLAN
Modular Example
Scale = 1/8"

Installation

Location

The refrigerated merchandisers have been designed for use only in air conditioned stores where temperature and humidity are maintained at or below 75°F and 55% relative humidity. DO NOT allow air conditioning, electric fans, ovens, open doors or windows (etc.) to create air currents around the merchandiser, as this will impair its correct operation.

Product temperature should always be maintained at a constant and 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 life of the product.

Uncrating the Stand

Place the fixture as close to its permanent position as possible. Remove the top of the crate. Detach the walls from each other and remove from the skid. Unbolt the case from the skid. The fixture can now be lifted off the crate skid. **Lift only at base of stand!**

Exterior Loading

These models have **not** been structurally designed to support excessive external loading. **Do not walk on their tops;** This could cause serious personal injury and damage to the fixture.

Installation (Cont'd)

Setting and Joining

The sectional construction of these models enable them to be joined in line to give the effect of one continuous display. A joint trim kit is supplied with each joint.

Leveling

IMPORTANT! IT IS IMPERATIVE THAT CASES BE LEVELED FROM FRONT TO BACK AND SIDE TO SIDE PRIOR TO JOINING. A LEVEL CASE IS NECESSARY TO INSURE PROPER OPERATION, WATER DRAINAGE, GLASS ALIGNMENT, AND OPERATION OF THE HINGES SUPPORTING THE GLASS. LEVELING THE CASE CORRECTLY WILL SOLVE MOST HINGE OPERATION PROBLEMS.

NOTE: A. To avoid removing concrete flooring, begin lineup leveling from the highest point of the store floor.

B. When wedges are involved in a lineup, set them first.

All cases were leveled and joined prior to shipment to insure the closest possible fit when cases are joined in the field. When joining, use a carpenters level and shim legs accordingly. Case must be raised correctly, under legs where support is best, to prevent damage to case.

1. Check level of floor where cases are to be set. Determine the highest point of the floor; cases will be set off this point.
2. Set first case, and adjust legs over the highest part of the floor so that case is level. Prevent damage-case must be raised under leg or by use of 2x6 or 2x4 leg brace. Remove side and back leg braces after case is set.
3. Set second case as close as possible to the first case, and level case to the first using the instructions in step one.
4. Apply masking tape 1/8” in from end of case on inside and outside rear mullion on both cases to be joined.
5. Apply liberal bead of case joint sealant (butyl) to (dotted area shown in figure) first case. Apply heavy amount to cover entire shaded area.

DO NOT USE PERMAGUM!

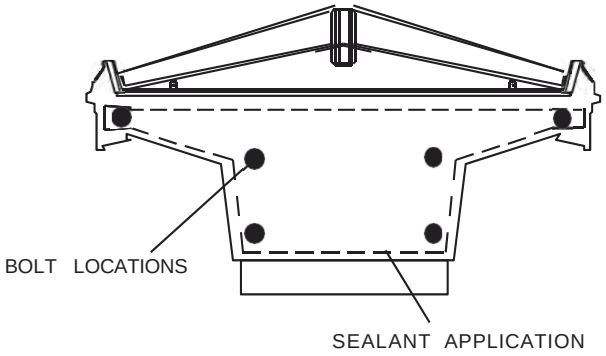
It is the contractor’s responsibility to install case(s) according to local construction and health codes

6. Slide second case up to first case snugly. Then level second case to the first case so glass front, bumper and top are flush.
7. Apply bead of silicone to side of either half of case (if case is built in two pieces). Also apply silicone to seam between overhead light tubes.
8. Slide second half up to first case snugly. To compress silicone at joint, use two Jurgenson wood clamps to pull the inside of the bulkheads together. Make sure case is level from front to back and side to side at joint. DO NOT USE BOLTS TO DRAW CASES UP TIGHT! DAMAGE MAY OCCUR! Make sure cases are tight and bolted together in all locations (see diagram next page). Remove clamps. Cleanup excess silicone.
9. There may be an interlock system built into the tower, depending on the height of it. Joining involves a number of bolts, again dependent on the height.
10. Attach joint trim pieces, that will hide the loose joint where the case halves come together.
11. Connect case to field electrical, refrigeration, and pipe to floor sink.
12. Install body covers.
13. Attach cart bumper, if applicable.

Splash Guard

After cases have been leveled and joined, and refrigeration, electrical, and wasted piping work completed, install the splashguards. Fasten along the top edge, or center, with #10 X 3/3” sheet metal screws.

DO NOT SEAL JOINT TRIM TO FLOOR!



Installation (Cont'd)

Bumper Installation Instructions

Step 1: Make sure the aluminum channel and end caps are installed.

Step 2: Use silicone lubricant to help the bumper slide into the channel.

Step 3: Starting on one end: while inserting the bumper, push it up against the end cap to prevent the bumper from shrinking after installation (when it gets cold).

Step 4: As you insert the bumper into the channel with one hand, pull the bumper toward you with the other to open the inside lips. Slowly apply pressure by rolling the bumper into the track.

Installation (Cont'd)

Boston Series 2000

NOTE: Flexible top: Over cut vinyl 1/8" for every 4' section for the flexible top to ensure a proper fit.

NOTE: Rigid Top: Do not over cut.

1. Attach the base and end/corner cap to the desired surface by inserting #8 pan head screws through the pre-slotted holes in both the end cap and the base. Insert screws through the two holes of end cap and tighten.

2a. **Flexible Top:** Butt end of the vinyl top against end/corner cap. While applying pressure, bend back vinyl top so that vinyl legs are positioned within the base grooves. Roll vinyl top over full length of base, then tap with rubber mallet to ensure vinyl is securely locked into the base.

2b. **Rigid Top:** Snap the Rigid Top over the Rigid Base.

3. If necessary wipe clean with any household cleaning product.

Helpful Hints:

- For best results, before cutting, install a scrap piece of base into vinyl top to achieve a clean cut.
- Set the uncoiled flexible vinyl at room temperature 24 hours prior to installation.
- Lubricate the inside of the vinyl with soapy water or silicone before installing.
- Over cut the flexible vinyl and compression fit. Adding the additional materials will compensate for stretching which occurs during installation.

Boston 2000 Eco Series

1. Attach the base and end/corner cap to the desired surface by inserting #8 pan head screws through the pre-slotted holes in both the end cap and the base. Insert screws through the two holes of end cap and tighten.

2a. **Flexible Top:** Butt end of the vinyl top against end/corner cap. While applying pressure, bend back vinyl top so that vinyl legs are positioned within the base grooves. Roll vinyl top over full length of base, then tap with rubber mallet to ensure vinyl is securely locked into the base.

2b. **Rigid Top:** Snap the Rigid Top over the Rigid Base.

3. If necessary wipe clean with any household cleaning product.

Helpful Hints:

- For best results, before cutting, install a scrap piece of base into vinyl top to achieve a clean cut.
- Set the uncoiled flexible vinyl at room temperature 24 hours prior to installation.
- Lubricate the inside of the vinyl with soapy water or silicone before installing.
- Over cut the flexible vinyl and compression fit. Adding the additional materials will compensate for stretching which occurs during installation.

Installation (Cont'd)

Boston 1000 Series

NOTE: Flexible top: Over cut vinyl 1/8" for every 4' section for the flexible top to ensure a proper fit.

NOTE: Rigid Top: Do not over cut.

Installation

1. Attach the base and end/corner cap to the desired surface by inserting #8 pan head screws through the pre-slotted holes in both the end cap and the base. Insert screws through the two holes of end cap and tighten.

2a. **Flexible Top:** Butt end of the vinyl top against end/corner cap. While applying pressure, bend back vinyl top so that vinyl legs are positioned within the base grooves. Roll vinyl top over full length of base, then tap with rubber mallet to ensure vinyl is securely locked into the base.

2b. **Rigid Top:** Snap the Rigid Top over the Rigid Base.

3. If necessary wipe clean with any household cleaning product.

Helpful Hints:

- For best results, before cutting, install a scrap piece of base into vinyl top to achieve a clean cut.
- Set the uncoiled flexible vinyl at room temperature 24 hours prior to installation.
- Lubricate the inside of the vinyl with soapy water or silicone before installing.
- Over cut the flexible vinyl and compression fit. Adding the additional materials will compensate for stretching which occurs during installation.

Plumbing

Waste Outlet and P-TRAP

The waste outlet is located off the center of the case on one side allowing drip piping to be run lengthwise under the fixture. The water seal is facory installed. Do not tighten the water seal where it connects to the drain fitting. Twisting the water seal "trap" can cause a water leak in the case's bottom liner. Do not use thread sealant between ABS drain fitting and water seal.

P-traps must be installed at the base of all refrigerated cases. The 1 ½" P-TRAP and threaded adapter must be installed to prevent air leakage and insect entrance into the fixture.

Access Panels

All electrical and drain access panels are clearly labeled on the deck of the produce stand. The access for condensing units (in the self contained units) is located on the side of the stand, at the end. Ends of stand are fitted for removal, if condensing unit has to be taken out.

Installing Condensate Drain

Poorly or improperly installed condensate drains can seriously interfere with the operation of this refrigerator, and result in costly maintenance and product losses. Please follow the recommendations listed below when installing condensate drains to insure a proper installation:

1. Never use pipe for condensate drains smaller than the nominal diameter of the pipe or P-TRAP supplied with the case.
2. When connecting condensate drains, the P-TRAP must be used as part of the condensate drain to prevent air leakage or insect entrance. Store plumbing system floor drains should be at least 14" off the center of the case to allow use of the P-TRAP pipe section. Never use two water seals in series in any one line. Double P-TRAPS in series will cause a lock and prevent draining.
3. Always provide as much down hill slope ("fall") as possible; 1/8" per foot is the preferred minimum. PVC pipe, when used, must be supported to maintain the 1/8" pitch and to prevent warping.
4. Avoid long runs of condensate drains. Long runs make it impossible to provide the "fall" necessary for good drainage.
5. Provide a suitable air break between the flood rim of the floor drain and outlet of condensate drain. 1" is ideal.
6. Prevent condensate drains from freezing:
   a. Do not install condensate drains in contact with non-insulated suction lines. Suction lines should be insulated with a non absorbent insulation material such as Armstrong's Armaflex.
   b. Where condensate drains are located in dead air spaces (between refrigerators or between a refrigerator and a wall), provide means to prevent freezing. The water seal should be insulated to prevent condensation.

WARNING!

Do NOT apply thread sealer to ABS P-Trap.

Hose Reel

If an optional hose reel is ordered, it will be installed at the factory. The water supply valve is located next to the access panel. Connect the water supply to the valve.

PRECAUTION

THE DRAIN AND WATER SEAL ARE FACTORY INSTALLED. DO NOT USE THREAD SEALANT OR OVERTIGHTEN THESE PARTS. DO NOT TWIST WATER SEAL. DAMAGE TO THE DRAIN FITTING OR WATER SEAL MAY OCCUR

Refrigerant Type
The standard refrigerant will be R-22 unless otherwise specified on the customer order. Check the serial plate on the case for information.

Piping
The refrigerant line outlets are located under the case. Locate first the electrical box, the outlets are then on the same side of the case but at the opposite end. Insulate suction lines to prevent condensation drippage.

Access Panels
All electrical and drain access panels are clearly labeled on the deck of the produce stand. The access for condensing units (in the self contained units) is located on the side of the stand, at the end. Ends of stand are fitted for removal, if condensing unit has to be taken out.

Refrigeration Lines

Liquid	Suction
3/8” O.D.	5/8” O.D.

NOTE: The standard coil is piped at 5/8” (suction); however, the store tie-in may vary depending on the number of coils and the draw the case has. Depending on the case setup, the connecting point in the store may be 5/8”, 7/8”, or 1 1/8”. Refer to the particular case you are hooking up.

Refrigerant lines should be sized as shown on the refrigeration legend furnished by the store.

Oil traps must be installed at the base of all suction line vertical risers on refrigerated cases.

Pressure drop can rob the system of capacity. To keep the pressure drop to a minimum, keep refrigerant line run as short as possible, using the minimum number of elbows. Where elbows are required, use long radius elbows only.

Control Settings
See DBP, DBRP 01, 03 technical data sheet for the appropriate settings for your merchandiser. Maintain these parameters to achieve near constant product temperatures. Product temperature should be measured first thing in the morning, after having been refrigerated overnight. For all multiplexing, defrost should be time terminated. Loadmaster valves are not recommended. Defrost times should be as directed in the DBP, DBRP 01, 03 technical data sheet. The number of defrosts per day should never change. The duration of the defrost cycle may be adjusted to meet conditions present at your location.

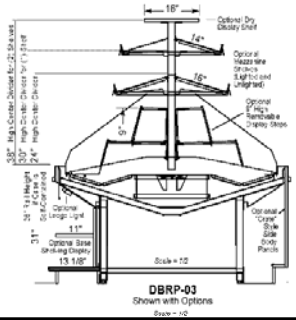
Specification Sheet

SERVICE ISLAND REVISION DATE 5/15/17

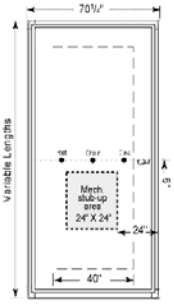
HUSSMANN - DBRP-03 (CHINO)

DOE 2017 Energy Efficiency Compliant

Hussmann refrigerated merchandisers configured for sale for use in the United States meet or surpass the requirements of the DOE 2017 energy efficiency standards.



DBRP-03
Shown with Options



DBRP-03
PlanView
NOTE: Mechanical Stub-Up Areas will vary with size of case.
Consult factory for location(s).

REFRIGERATION DATA:

CASE LENGTHS	CASE USAGE*	CAPACITY (BTU/HR/FT)	TEMPERATURE (°F)		VELOCITY (FT/MIN)
		RATING CONDITION	EVAPORATOR	DISCHARGE AIR ** (°F)	
		AHRI 1200	AHRI 1200		
8',10',12',14',16' 18',20',22',24',26' 28',30',32',34',36'	PRODUCE	1550	18	34	50~100

***APPROVED FOR NON-CRITICAL TEMP PRODUCE ONLY.**
****FRONT DISCHARGE AIR MEASURED INSIDE AIR CURTAIN HONEYCOMB**
*****REFRIGERATION NOTES:**

1) BTU'S INCLUDE ONE ROW OF CANOPY LIGHTS
2) USE DEW POINT FOR HIGH GLIDE REFRIGERANTS. CARE SHOULD BE TAKEN TO USE THE DEW POINT IN P/T TABLES FOR MEASURING AND ADJUSTING SUPERHEAT. ADJUST EVAPORATOR PRESSURE AS NEEDED TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SHOWN.
3) RATING CONDITION IS NSF TYPE I, 75°F/55% RH

CASE LENGTHS	EST. REFG. CHRG. (R404A) (LBS)	20°F GLYCOL 6° RISE	
		GPM	PSI *
8'	N/A	4.4	2.7
10'	N/A	5.4	3.8
12'	N/A	6.4	4.9
14'	N/A	7.4	6.1
16'	N/A	8.8	7.1
18'	N/A	9.8	3.8
20'	N/A	10.8	3.8
22'	N/A	11.8	4.9
24'	N/A	12.8	4.9
26'	N/A	13.8	6.1
28'	N/A	14.7	6.1
30'	N/A	16.2	3.8
32'	N/A	17.2	4.9
34'	N/A	18.2	4.9
36'	N/A	19.2	4.9

REFRIGERATION DATA CONTINUED:

ELEC. THERMOSTAT / AIR SENSOR SETTINGS			DEFROST TYPE	TIME (MIN)	DEFROST FREQ (#/DAY)	TERM. TEMP (°F) COIL ONLY	DRIP TIME	DEFROST WATER (LBS/DAY/FT)
USAGE	CUT IN (°F)	CUT OUT (°F)						
PRODUCE	29	26	OFF TIME	30	6	48	N/A	0.9

END PANEL WIDTH KEY		
# OF END PNLS	END PNL WIDTH (IN.)	TOTAL ADDED LENGTH (IN.)
1	1.125	1.125
2	1.125	2.25

ELECTRICAL DATA:

STANDARD FANS, HEATERS, LED LIGHTS (115 VOLT)

CASE LENGTH	EVAPORATOR FANS					CANOPY LIGHTS LED		LED SHELF LIGHTS		MAX. LED LOAD (W/ ALL OPTIONS)		ANTI-SWEAT HEATERS (ON FAN CIRCUIT)		CONVENIENCE OUTLETS (OPTIONAL)		
	# OF EVAP FANS	BLADE DIA. (IN.)	BLADE PITCH (°)	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS	# OUTLETS	VOLTS	AMPS
8'	2	8	20	0.6	16	0.4	41	0.7	82	1.1	124	N/A	N/A	1	115	15
10'	3	8	20	0.9	24	0.5	52	0.9	104	1.4	156	N/A	N/A	1	115	15
12'	4	8	20	1.2	32	0.5	62	1.1	124	1.6	185	N/A	N/A	1	115	15
14'	5	8	20	1.5	40	0.4	47	1.3	150	1.7	197	N/A	N/A	1	115	15
16'	6	8	20	1.8	48	1.1	124	1.4	165	2.5	288	N/A	N/A	1	115	15
18'	7	8	20	2.1	56	0.8	93	1.6	186	2.4	279	N/A	N/A	1	115	15
20'	8	8	20	2.4	64	0.9	104	1.8	208	2.7	312	N/A	N/A	1	115	15
22'	9	8	20	2.7	72	0.9	104	1.8	208	2.7	312	N/A	N/A	1	115	15
24'	10	8	20	3.0	80	1.1	124	2.1	247	3.2	371	N/A	N/A	1	115	15
26'	11	8	20	3.3	88	1.1	124	2.1	247	3.2	371	N/A	N/A	1	115	15
28'	12	8	20	3.6	96	1.4	156	2.7	312	4.1	468	N/A	N/A	1	115	15
30'	13	8	20	3.9	104	1.4	156	2.7	312	4.1	468	N/A	N/A	1	115	15
32'	14	8	20	4.2	112	1.4	156	2.7	312	4.1	468	N/A	N/A	1	115	15
34'	15	8	20	4.5	120	1.6	185	3.2	371	4.8	556	N/A	N/A	1	115	15
36'	16	8	20	4.8	128	1.6	185	3.2	371	4.8	556	N/A	N/A	1	115	15

OPTIONAL HIGH OUTPUT LED LIGHTS (115 VOLT)

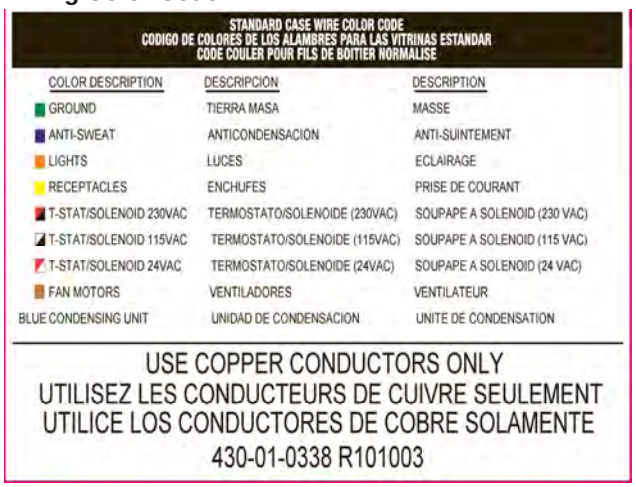
CASE LENGTH	CANOPY LIGHTS H.O. LED		SHELF LIGHTS H.O. LED		MAX. H.O. LED LOAD	
	AMPS	WATTS	AMPS	WATTS	AMPS	WATTS
8'	0.5	61	1.1	122	1.6	183
10'	N/A	N/A	N/A	N/A	N/A	N/A
12'	0.8	91	1.6	183	2.4	274
14'	N/A	N/A	N/A	N/A	N/A	N/A
16'	1.6	183	2.1	243	3.7	426
18'	N/A	N/A	N/A	N/A	N/A	N/A
20'	N/A	N/A	N/A	N/A	N/A	N/A
22'	1.1	122	2.1	243	3.2	365
24'	1.6	183	3.2	365	4.8	548
26'	1.6	183	3.2	365	4.8	548
28'	N/A	N/A	N/A	N/A	N/A	N/A
30'	N/A	N/A	N/A	N/A	N/A	N/A
32'	1.6	183	3.2	365	4.8	548
34'	2.4	274	4.8	548	7.1	821
36'	2.4	274	3.2	371	5.6	644

*COIL MAKE-UP FOR LARGER THAN SINGLE COIL PACKAGES.

16' = 16'	24' = 12'+12'	32' = 10'+12'+10'
18' = 8'+10'	26' = 12'+14'	34' = 12'+10'+12'
20' = 10'+10'	28' = 14'+14'	36' = 12'+12'+12'
22' = 10'+12'	30' = 10'+10'+10'	

Electrical

Wiring Color Code



CASE MUST BE GROUNDED

NOTE: Refer to label illustrated above that is affixed to case to determine the actual configuration as checked in the "TYPE INSTALLED" boxes.

Electrical Circuit Identification

Standard lighting for all models will be full length LED lamps located within the case at the top.

The switch controlling the lights, the plug provided for digital scale, and the thermometer are located at the rear of the case mullion.

The receptacle that is provided on the exterior back of these models is intended for computerized scales with a five amp maximum load, not for large motors or other high wattage appliances. It should be wired to a dedicated circuit.

Electrical Service Receptacles (When Applicable)

The receptacles located on the exterior of the merchandiser are intended for scales and lighted displays. They are not intended nor suitable for large motors or other external appliances.

DANGER

BEFORE SERVICING ALWAYS DISCONNECT ELECTRICAL POWER AT THE MAIN DISCONNECT WHEN SERVICING OR REPLACING ANY ELECTRICAL COMPONENT.
This includes (but not limited to) Fans, Heaters Thermostats, and Lights.

Field Wiring and Serial Plate Amperage

Field Wiring must be sized for component amperes printed on the serial plate. Actual ampere draw may be less than specified. Field wiring from the refrigeration control panel to the merchandisers is required for refrigeration thermostats. Case amperes are listed on the wiring diagram, but always check the serial plate.

LED Driver Location

Drivers are located within the access panel that runs the length of the rear of the case.

Ashrae Color Code

NOTE: All other manufacturers have no standard sensor codes.

Case Control Systems SENSOR COLOR			
Manufacturer ® >		EIL	CPC
Location			
Coil Inlet	Color	Blue	Blue
	Part#	225-01-1755	225-01-3255
Coil Outlet	Color	Red	Red
	Part#	225-01-1757	225-01-3123
Discharge Air	Color	Green	Green
	Part#	225-01-1756	225-01-3260
Return Air	Color	Purple	Green
	Part#	225-01-1758	225-01-3260
Defrost Term.	Color	White	Orange
	Part#	225-01-0650	225-01-3254
Liquid Line	Color	White	Blue
	Part#	225-01-0650	225-01-3255

Parameter Programmed Report

Parameter	Description	Value	Min	Max
1	Freezer Cut-in warm	42°F	-40ºC (-40ºF)	40ºC (104ºF)
2	Freezer Cut-out warm	36°F	-40ºC (-40ºF)	40ºC (104ºF)
3	Freezer Cut-in cold	36°F	-40ºC (-40ºF)	40ºC (104ºF)
4	Freezer Cut-out cold	30°F	-40ºC (-40ºF)	40ºC (104ºF)
5	Compressor ON time delay at Controller Power Up	0 min 30 sec	0 sec	59 min 59 sec
6	Compressor Minimum (ON) time	1 min 0 sec	0 sec	30 min 59 sec
7	Compressor Minimum (OFF) time	2 min 0 sec	0 sec	59 min 59 sec
8	Potentiometer off position	10º	5º	57º
9	Potentiometer on position	15º	9º	61º
10	On-Off logical function	1	0=disable or 1=enable	
11	Controller Operation Temperature Units	1	0=Celsius or 1=Fahrenheit	
12	Sensor failure mode (compressor and fan relay failure mode)	3	0=Relays fail OPEN 2=Relays fail CLOSE 3=Duty cycle	
13	Compressor On Time if Sensor failed	0 hour 45 min	1 min	59 hour 59 min
14	Compressor Off Time if Sensor failed	0 hour 6 min	1 min	59 hour 59 min
15	Defrost Function	1	0=disable 1=System run time 2=Compressor run time	
16	Defrost Method	2	1=Electric 2=Off-cycle 3=reverse cycle	
17	Time to first defrost(Initial frost build time)	2 hour 0 min	10 min	71 hour 59 min
18	Time to subsequent defrost	4 hour 0 min	10 min	71 hour 59 min
19	Defrost duration Time (failsafe)	0 hour 26 min	1 min	4 hour 59 min
20	Defrost Termination temperature	54°F	-40ºC (-40ºF)	40ºC (104ºF)
21	Drip time	0 min 0 sec	0 sec	59 min 59 sec
22	Defrost Cycle at power on	0	0=disable or 1=enable	
23	Evaporator Temp. Sensor	1	0=disable or 1=enable	
24	Defrost Termination Method	1	0=disable 1=Evap. Sensor 2=Control Sensor 3=Digital Switch (close)	
25	Temperature Initiated Defrost Function	0	0=disable or 1=enable	
26	Temperature Initiated Defrost (T = Tspace-Tevap.)	2°F	0ºC (0ºF)	40ºC (72ºF)
27	Temperature Initiated Defrost Time Delay	3 min 0 sec	0 sec	59 min 59 sec
28	Temperature Initiated Defrost Time Delay After Defrost	59 min 0 sec	0 sec	59 min 59 sec
29	Temperature Alarm Enable	1	0=disable or 1=enable	
30	High Temperature Alarm - Warm	48°F	-40ºC (-40ºF)	40ºC (104ºF)
31	Low Temperature Alarm - Warm	34°F	-40ºC (-40ºF)	40ºC (104ºF)
32	High Temperature Alarm - Cold	40°F	-40ºC (-40ºF)	40ºC (104ºF)
33	Low Temperature Alarm - Cold	28°F	-40ºC (-40ºF)	40ºC (104ºF)
34	Temperature Alarm Differential	4°F	1ºC (2ºF)	10ºC (18ºF)
35	Temperature Alarm Time delay	0 hour 20 min	0 min	4 hour 59 min
36	Temperature Alarm Disable Time after Start Up	3 hour 0 min	0 min	17 hour 59 min
37	Temperature Alarm Delay after Defrost	1 hour 0 min	0 min	17 hour 59 min
38	Buzzer Function	1	0=disable or 1=enable	
39	Buzzer Period	24.9 sec	0.2 sec	24.9 sec
40	Led Alarm Function	1	0=disable or 1=enable	
41	Led Alarm Period	2.0 sec	0.4 sec	24.8 sec
42	Defrost Display Lock (display indication during defrost)	1	0=display temperature read 1=lock the display on temp. 2=display DF	
43	Sensor Fault Monitoring Time	1 min 0 sec	5 sec	59 min 59 sec
44	Display Temperature Offset	0°F	-40ºC (-72ºF)	40ºC (72ºF)
45	Display Unlock Time	0 hour 45 min	0 min	1 hour 59 min
46	Show Parameter Code Number	1	0=disable or 1=enable	
47	Parameter Code Number	11	0	99
48	Maximum Compressor Run Function	0	0=disable or 1=enable	
49	Maximum Compressor Run Time	2 hour 0 min	0 min	17 hour 59 min
50	Defrost Heater Duty Cycle Function	0	0=disable or 1=enable	
51	Heater On Time	1 min 0 sec	5 sec	59 min 59 sec
52	Heater Off Time	0 min 30 sec	0 sec	59 min 59 sec

User Information

Stocking

Improper temperature and lighting will cause serious product loss. Discoloration, dehydration and spoilage can be controlled with proper use of the equipment and handling of product. Product temperature should always be maintained at a constant and 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 life of the product. Hussmann cases were not designed to “heat up” or “cool down” product-but rather to maintain an item’s proper temperature for maximum shelf life. To achieve the protection required always:

1. Minimize processing time to avoid damaging temperature rise to the product. Product should be at proper temperature.
2. Keep the air in and around the case area free of foreign gasses and fumes or food will rapidly deteriorate.
3. Maintain the display merchandisers temperature controls as outlined in the refrigerator section of this manual.
4. Do not place any product into these refrigerators until all controls have been adjusted and they are operating at the proper temperature. Allow merchandiser to operate a minimum of 6 hours before stocking with any product.
5. When stocking, never allow the product to extend beyond the recommended load limit. **Air discharge and return air flue must be unobstructed at all times to provide proper refrigeration.**
6. There are vents located at the base of the front of the glass, just above the front rail. These vents supply a continuous, gentle flow of air across the front glass which inhibits condensation. **Do not place any signs or other restrictive objects on the front of the refrigerator that will block these vents.**
7. Avoid the use of supplemental flood or spot lighting. Display light intensity has been designed for maximum visibility and product life at the factory. The use of higher output LED lamps (H.O. and V.H.O.), will shorten the shelf life of the product.
8. Cold coils remove heat and moisture from the case and deposit this as frost onto the coil. Thus, a defrost is required. The only other moisture within the case is that in the product itself. A single level of meat will dry out faster than a fully loaded case of 3-4 levels of meat.

Important Steps

1. Do not set temperature too cold, as this causes product dehydration. **See Case Specs for Proper Temperature: Settings**.

Case Cleaning

Long life and satisfactory performance of any equipment are dependent upon the care given to it. To insure long life, proper sanitation and minimum maintenance costs, the refrigerator should be thoroughly cleaned frequently. SHUT OFF FAN DURING CLEANING PROCESS. It can be unplugged within the case, or shut off case at the source. The interior bottom may be cleaned with any domestic soap or detergent based cleaners. Sanitizing solutions will not harm the interior bottom, however, these solutions should always be used according to the manufacturer’s directions. It is essential to establish and regulate cleaning procedures. This will minimize bacteria causing discoloration which leads to degraded product appearance and significantly shortening product shelf life.

Soap and hot water are not enough to kill this bacteria. A sanitizing solution must be included with each cleaning process to eliminate this bacteria.

1. Scrub thoroughly, cleaning all surfaces, with soap and hot water.
2. Rinse with hot water, but do not flood.
3. Apply the sanitizing solution according to the manufacturer’s directions.
4. Rinse thoroughly.
5. Dry completely before resuming operation.

CAUTION

CLEANING PRECAUTIONS

When cleaning:

- **Do not use high pressure water hoses**
- **Do not introduce water faster then waste outlet can drain**
- **NEVER INTRODUCE WATER ON SELF CONTAINED UNIT WITH AN EVPORATOR PAN**
- **NEVER USE A CLEANING OR SANITIZING SOLUTION THAT HAS AN OIL BASE (these will dissolve the butyl sealants) or an AMMONA BASE (this will corrode the copper components of the case)**
- **TO PRESERVE THE ATTRACTIVE FINISH:**
- **DO USE WATER AND A MILD DETERGENT FOR THE EXTERIOR ONLY**
- **DO NOT USE A CHLORANITED CLAENER ON ANY SURFACE**
- **DO NOT USE ABRASIVES OR STEEL WOOL SCOURING PADS (these will mar the finish)**

DANGER

BEFORE SERVICING ALWAYS DISCONNECT ELECTRICAL POWER AT THE MAIN DISCONNECT WHEN SERVICING OR REPLACING ANY ELECTRICAL COMPONENT. This includes (but not limited to) Fans, Heaters Thermostats, and Lights.

Evaporator Fans

The evaporator fans are located at the center front of these merchandisers directly beneath the display pans. *Should fans or blades need servicing, always replace fan blades with the raised embossed side of the blade TOWARD THE MOTOR.*

Copper Coils

The copper coils used in Hussmann merchandisers may be repaired in the field. Materials are available from local refrigeration wholesalers.

Hussmann recommends using #15 Sil-Fos for repairs.

Tips and Troubleshooting

Before calling for service, check the following:

1. Check electrical power supply to the equipment for connection.
2. Check fixture loading. Overstocking case will affect its proper operation.
3. If frost is collecting on fixture and/or product, check that Humidity Control is working properly, and that no outside doors or windows are open-allowing moisture to enter store.

IMPORTANT INFORMATION

FOR PROMPT SERVICE
When contacting the factory, be sure to have the Case Model and Serial Number handy. This information is on a plate located on the case itself.

Stainless Steel Cleaning and Care

There are three basic things, which can break down your stainless steel's passivity layer and allow corrosion.

1. **Mechanical Abrasion**
   Mechanical Abrasion means those things that will scratch the steels surface. Steel Pads, wire Brushes, and Scrapers are prime examples.
2. **Water**
   Water comes out of our tap in varying degrees of hardness. Depending on what part of the country you live in, you may have hard or soft water. Hard water may leave spots. Also, when heated, hard water leaves deposits behind that if left to sit, will break down the passive layer and rust your stainless steel. Other deposits from food preparation and service must be properly removed.
3. **Chlorides**
   Chlorides are found nearly everywhere. They are in water, food and table salt. One of the worst perpetrators of chlorides can come from household and industrial cleaners.

Don't Despair! Here are a few steps that can help prevent stainless steel rust.

1. **Use the Proper Tools**
   When cleaning your stainless steel products, take care to use non-abrasive tools. Soft Clothes and plastic scouring pads will NOT harm the steel's passive layer. Stainless steel pads can also be used but the scrubbing motion must be in the same direction of the manufacturer's polishing marks.
2. **Clean With the Polish Lines**
   Some stainless steels come with visible polishing lines or "grain". When visible lines are present, you should ALWAYS scrub in a motion that is parallel to them. When the grain cannot be seen, play it safe and use a soft cloth or plastic scouring pad.
3. **Use Alkaline, Alkaline Chlorinated or Non-chloride Containing Cleaners**
   While many traditional cleaners are loaded with chlorides, the industry is providing an ever increasing choice of non-chloride cleaners. If you are not sure of your cleaner's chloride content contact your cleaner supplier. If they tell you that your present cleaner contains chlorides, ask for an alternative. Also, avoid cleaners containing quaternary salts as they also can attack stainless steel & cause pitting and rusting.
4. **Treat your Water**
   Though this is not always practical, softening hard water can do much to reduce deposits. There are certain filters that can be installed to remove distasteful and corrosive elements. Salts in a properly maintained water softener are your friends. If you are not sure of the proper water treatment, call a treatment specialist.
5. **Keep your Food Equipment Clean**
   Use alkaline, alkaline chlorinated or non-chlorinated cleaners at recommended strength. Clean

Maintenance (Cont'd)

frequently to avoid build-up of hard, stubborn stains. If you boil water in your stainless steel equipment, remember the single most likely cause of damage is chlorides in the water. Heating cleaners that contain chlorides has a similar effect.

6. **RINSE, RINSE, RINSE**
   If chlorinated cleaners are used you must rinse, rinse, rinse and wipe dry immediately. The sooner you wipe off standing water, especially when sit contains cleaning agents, the better. After wiping the equipment down, allow it to air dry for the oxygen helps maintain the stainless steel's passivity film.
7. **Never Use Hydrochloric Acid (Muriatic Acid) on Stainless Steel**
8. **Regularly Restore/Passivate Stainless Steel**

Wiring Diagram List

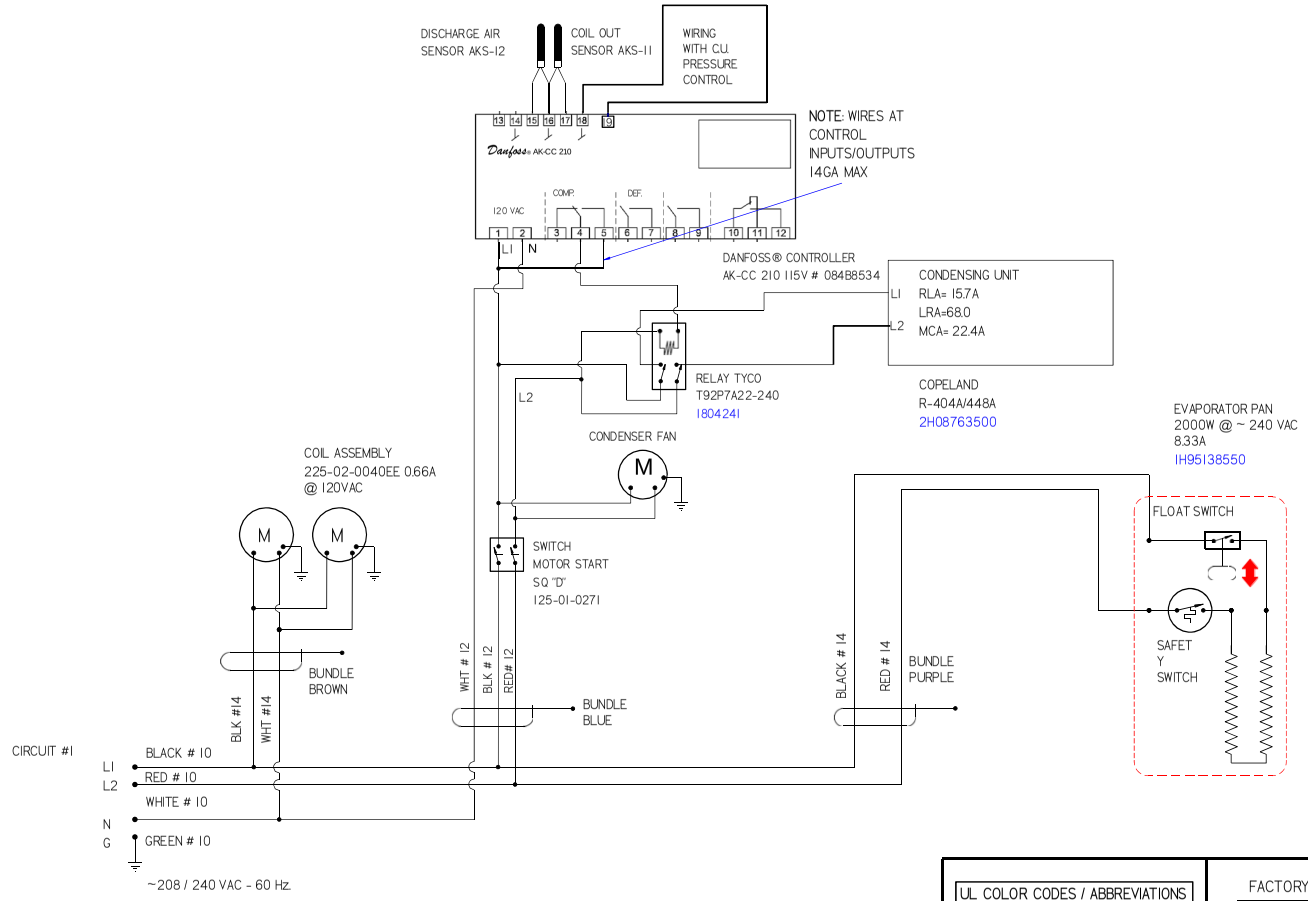
DBRP-SC PRESSURE	DBRP-03-8-SC R-404A/448A	8'	3129920
CONTROL	DBRP-03-12-SC R-404A/448A	12'	3129921
	DBRP-03-14-SC R-404A/448A	14'	3129922

CIRCUIT #1

	LOADING	
	208V	240V
L1	15.6	18.0
L2	15.0	17.3

2

REVISION HISTORY						
REV	ECN	DATE	REVISION DESCRIPTION	REV BY	CHKD BY	APPR BY
A	ECN-COD-0011341	8-5-20	RELEASED TO PRODUCTION	CB	CB	CB



NOTES:
1. PRINTED DOCUMENT REQUIRED SETTING: ALL COLORS BLACK & WHITE
2. CASE & ANY REMOVABLE PANEL WITH ELECTRICAL PARTS MUST BE GROUNDED.
3. WHEN PASSING WIRES THROUGH METAL HOLES A GROMMET MUST BE USED

UL COLOR CODES / ABBREVIATIONS

- RED = RD
- BLACK = BK
- BLUE = BL
- YELLOW =
- YL GRAY = GY
- WHITE = WT
- GREEN = GN
- BROWN = BN
- ORANGE =
- OR VIOLET = VT

FACTORY 14GA WIRE
FACTORY 10GA WIRE
FIELD WIRE

DO NOT SCALE DRAWING
SHEET 1 OF 1

HUSSMANN®

DIAGRAM-DBRP-03-8-SC

P/N 3129920 REV A

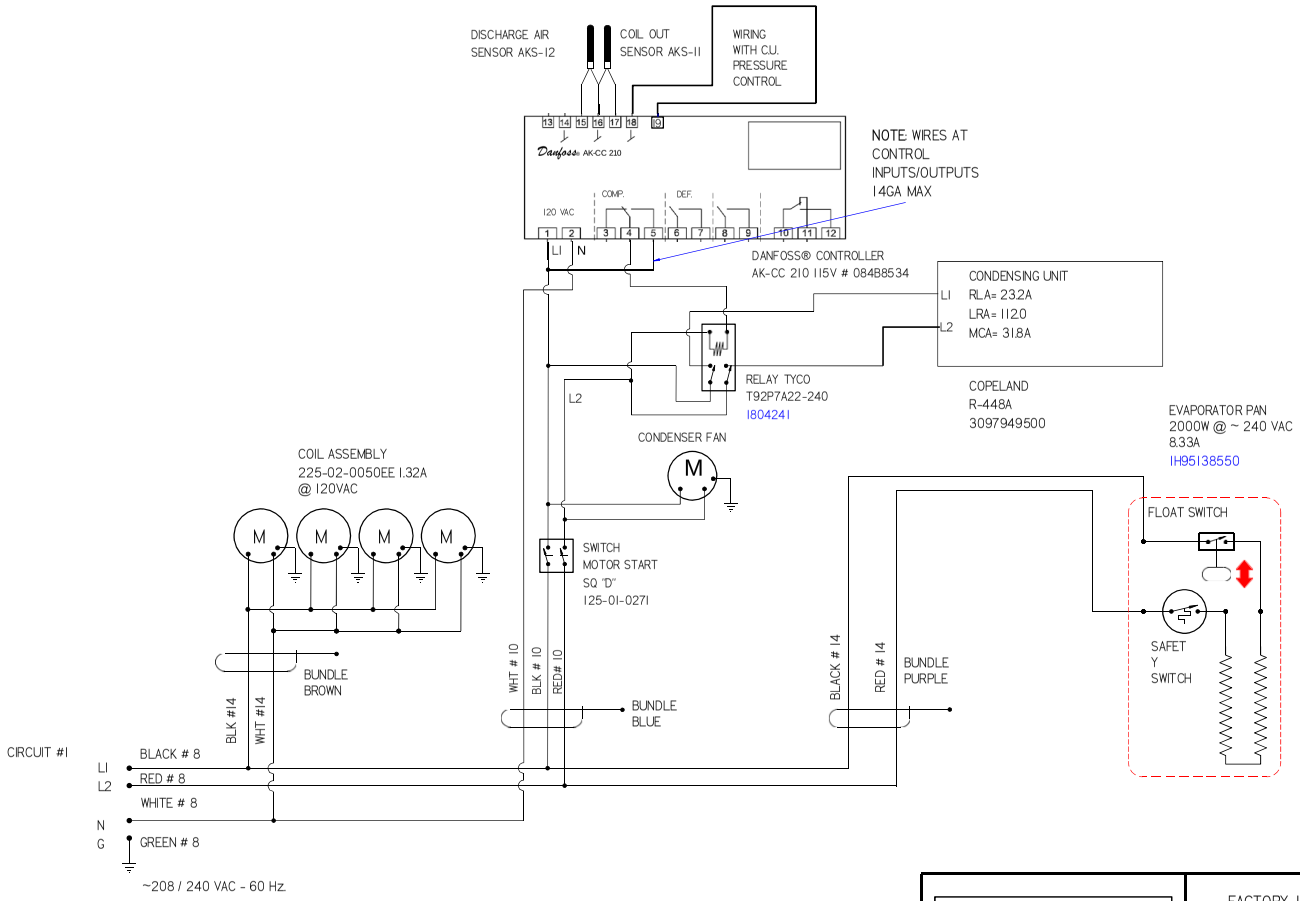
CND_10 WIRE DIAGRAM SIZE C

CIRCUIT #1
LOADING

	208V	240V
L1	28.5	32.9
L	27.3	31.5

2

REVISION HISTORY						
REV	ECN	DATE	REVISION DESCRIPTION	REV BY	CHKD BY	APPR BY
A	ECN-COD-0011341	8-5-20	RELEASED TO PRODUCTION	CB	CB	CB



NOTES:
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- YL GRAY = GY
- WHITE = WT
- GREEN = GN
- BROWN = BN
- ORANGE =
- OR VIOLET = VT

FACTORY 14GA WIRE
FACTORY 10GA WIRE
FIELD WIRE

DO NOT SCALE DRAWING
SHEET 1 OF 1

HUSSMANN®
DIAGRAM-DBRP-03-12-SC
P/N 3129921 REV A

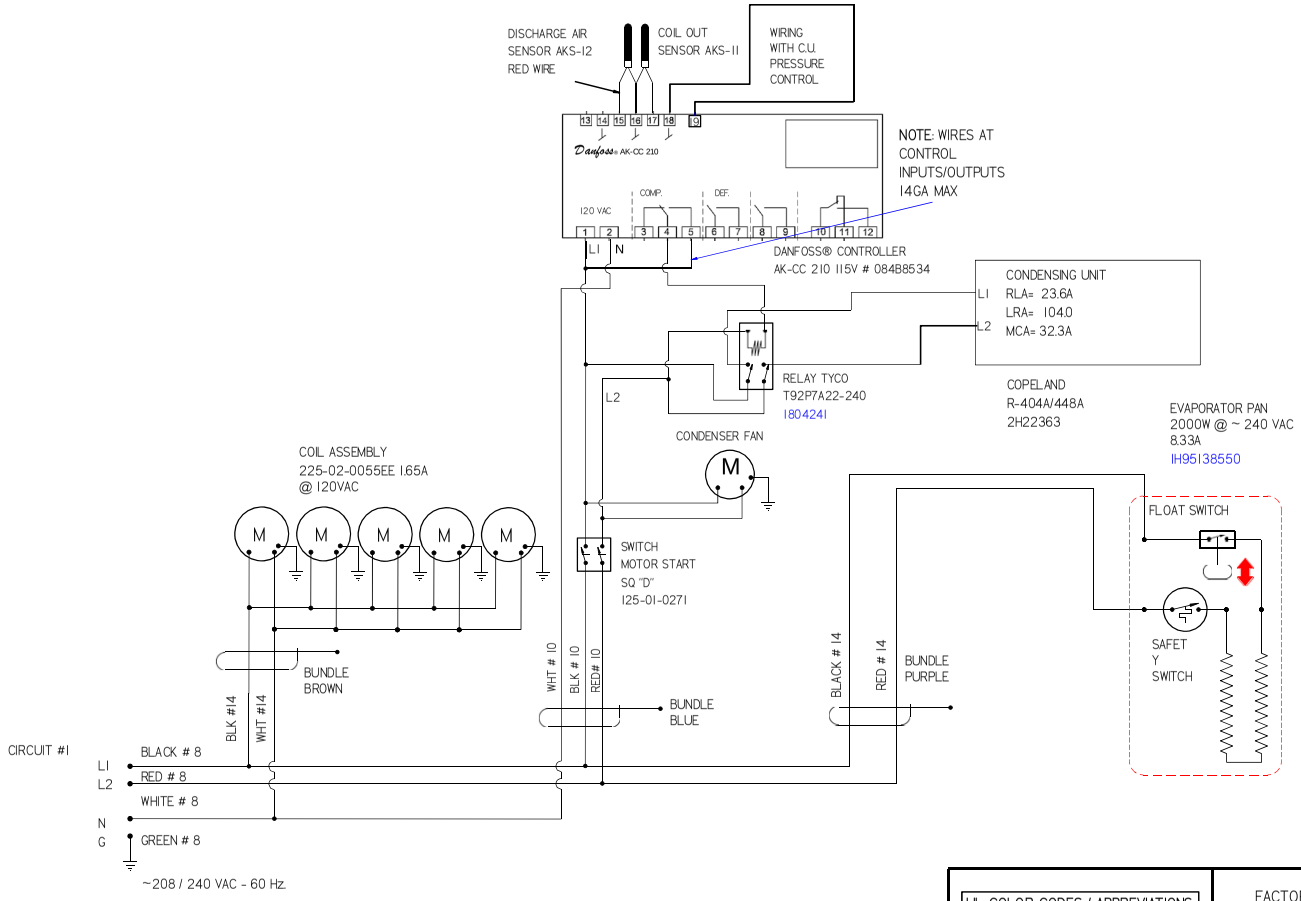
CNO-10 WIRE DIAGRAM SIZE C

CIRCUIT #1

	LOADING	
	208V	240V
LI	29.1	33.6
L	27.7	31.9

2

REVISION HISTORY						
REV	ECN	DATE	REVISION DESCRIPTION	REV BY	CHKD BY	APPR BY
A	ECN-COD-0011341	8-5-20	RELEASED TO PRODUCTION	CB	CB	CB



NOTES:
1. PRINTED DOCUMENT REQUIRED SETTING: ALL COLORS BLACK & WHITE
2. CASE & ANY REMOVABLE PANEL WITH ELECTRICAL PARTS MUST BE GROUNDED.
3. WHEN PASSING WIRES THROUGH METAL HOLES A GROMMET MUST BE USED

UL COLOR CODES / ABBREVIATIONS		
RED = RD	WHITE = WT	FACTORY 14GA WIRE
BLACK = BK	GREEN = GN	FACTORY 10GA WIRE
BLUE = BL	BROWN = BN	FIELD WIRE
YELLOW =	ORANGE =	
YL GRAY = GY	OR VIOLET = VT	

DO NOT SCALE DRAWING
SHEET 1 OF 1

HUSSMANN®
DIAGRAM-DBRP-03-14-SC
P/N 3129922 REV A

CND_10 WIRE DIAGRAM SIZE C

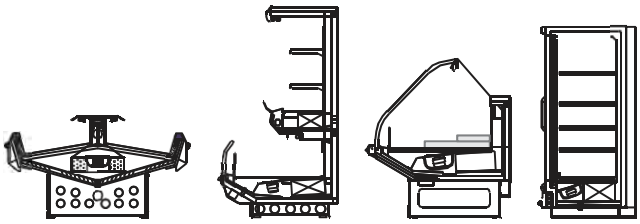
Appendices

Appendix A. - Temperature Guidelines - Refrigerated

The refrigerators should be operated according to the manufacturer's published engineering specifications for entering air temperatures for specific equipment applications. Table 1 shows the typical temperature of the air entering the food zone one hour before the start of defrost and one hour after defrost for various categories of refrigerators. Refer to Appendix C for Field Evaluation Guidelines.

Table 1

Type of Refrigerator	Typical Entering Air Temperature
I. OPEN DISPLAY	
A. Non frozen:	
1) Meat	28°F
2) Dairy/Deli	32°F
3) Produce	
a. Processed	36°F
b. Unprocessed	45°F
B. Frozen	0°F
C. Ice Cream	-5°F
II. CLOSED DISPLAY	
A. Non frozen:	
1) Meat	34°F
2) Dairy/Deli	34°F
3) Produce	
a. Processed	36°F
b. Unprocessed	45°F
B. Frozen	0°F
C. Ice Cream	-5°F



Single Deck Multi Deck Service Case Reach-In

I. Open Display Styles ***II. Closed Display Styles***

Appendix B. - Application Recommendations - Refrigerated

1. Temperature performance is critical for controlling bacteria growth. Therefore, the following recommendations are included in the standard. They are based on confirmed field experience over many years.
2. The installer is responsible for following the installation instructions and recommendations provided by Hussmann for the installation of each individual type refrigerator.
2. Refrigeration piping should be sized according to the equipment manufacturer's recommendations and installed in accordance with normal refrigeration practices. Refrigeration piping should be insulated according to Hussmann's recommendations.
3. A clogged waste outlet blocks refrigeration. The installer is responsible for the proper installation of the system which dispenses condensate waste through an air gap into the building indirect waste system.
4. The installer should perform a complete start-up evaluation prior to the loading of food into the refrigerator, which includes such items as:
   a) Initial temperature performance, Coils should be properly fed with a refrigerant according to manufacturer's recommendations.
   b) Observation of outside influences such as drafts, radiant heating from the ceiling and from lamps. Such influence should be properly corrected or compensated for.
   c) At the same time, checks should be made of the store dry-bulb and wet-bulb temperatures to ascertain that they are within the limits prescribed by Hussmann.
   d) Complete start-up procedures should include checking through a defrost to make certain of its adequate frequency and length without substantially exceeding the actual needs. This should include checking the electrical or refrigerant circuits to make sure that defrosts are correctly programmed for all the refrigerators connected to each refrigeration system.
   e) Recording instruments should be used to check performance.

Appendix C. - Field Recommendations - Refrigerated
Recommendations for field evaluating the performance of retail food refrigerators and hot cases

1.0 The most consistent indicator of display refrigerator performance is temperature of the air entering the product zone (see Appendix A). In practical use, the precise determination of return air temperature is extremely difficult. Readings of return air temperatures will be variable and results will be inconsistent. The product temperature alone is not an indicator of refrigerator performance.

NOTE: Public Health will use the temperature of the product in determining if the refrigerator will be allowed to display potentially hazardous food. For the purpose of this evaluation, product temperature above the FDA Food Code 1993 temperature for potentially hazardous food will be the first indication that an evaluation should be performed. It is expected that all refrigerators will keep food at the FDA Food Code 1993 temperature for potentially hazardous food.

Appendices (Cont'd)

1. The following recommendations are made for the purpose of arriving at easily taken and understood data which, coupled with other observations, may be used to determine whether a display refrigerator is working as intended:
   a) INSTRUMENT - A stainless steel stem-type thermometer is recommended and it should have a dial a minimum of 1 inch internal diameter. A test thermometer scaled only in Celsius or dually scaled in Celsius and Fahrenheit shall be accurate to 1°C (1.8°F). Temperature measuring devices that are scaled only in Fahrenheit shall be accurate to 2°F. The thermometer should be checked for proper calibration. (It should read 32°F when the stem is immersed in an ice water bath).
   b) LOCATION - The probe or sensing element of the thermometer should be located in the airstream where the air first enters the display or storage area, and not more than 1 inch away from the surface and in the center of the discharge opening.
   c) READING - It should first be determined that the refrigerator is refrigerating and has operated at least one hour since the end of the last defrost period. The thermometer reading should be made only after it has been allowed to stabilize, i.e., maintain a constant reading.
   d) OTHER OBSERVATIONS - Other observations should be made which may indicate operating problems, such as unsatisfactory product, feel/appearance.
   e) CONCLUSIONS - In the absence of any apparent undesirable conditions, the refrigerator should be judged to be operating properly. If it is determined that such condition is undesirable, i.e., the product is above proper temperature, checks should be made for the following:
      1. Has the refrigerator been loaded with warm product?
      2. Is the product loaded beyond the “Safe Load Line” markers?
      3. Are the return air ducts blocked?
      4. Are the entering air ducts blocked?
      5. Is a dumped display causing turbulent air flow and mixing with room air?
      6. Are spotlights or other high intensity lighting directed onto the product?
      7. Are there unusual draft conditions (from heating/air-conditioning ducts, open doors, etc.)?
      8. Is there exposure to direct sunlight?
      9. Are display signs blocking or diverting airflow?
      10. Are the coils of the refrigerator iced up?
      11. Is the store ambient over 75°F, 55% RH as set forth in ASHRAE Standard 72 and ASHRAE Standard 117?
      12. Are the shelf positions, number, and size other than recommended by Hussmann?
      13. Is there an improper application or control system?
      14. Is the evaporator fan motor/blade inoperative?
      15. Is the defrost time excessive?
      16. Is the defrost termination, thermostat (if used) set too high?
      17. Are the refrigerant controls incorrectly adjusted?
      18. Is the air entering the condenser above design conditions? Are the condenser fins clear of dirt, dust, etc.?
      19. Is there a shortage of refrigerant?
      20. Has the equipment been modified to use replacements for CFC-12, CFC-502 or other refrigerant? If so, have the modifications been made in accordance with the recommendations of the equipment manufacturer? Is the refrigerator charged with the proper refrigerant and lubricant? Does the system use the recommended compressor?

Appendix D. - Recommendations to User - Refrigerated

1.0 Hussmann Corporation provides instructions and recommendations for proper periodic cleaning. The user will be responsible for such cleaning, including the cleaning of low temperature equipment within the compartment and the cooling coil area(s). Cleaning practices, particularly with respect to proper refrigerator unloading and warm-up, must be in accordance with applicable recommendations.

Appendices (Cont'd)

1.1 Cleaning of non frozen food equipment should include a weekly cleaning of the food compartment as a minimum to prevent bacteria growth from accumulating. Actual use and products may dictate more frequent cleaning. Circumstances of use and equipment design must also dictate the frequency of cleaning the display areas. Weekly washing down of the storage compartment is also recommended, especially for equipment subject to drippage of milk or other liquids, or the collection of vegetable, meat, crumbs, etc. or other debris or litter. Daily cleaning of the external areas surrounding the storage or display compartments with detergent and water will keep the equipment presentable and prevent grime buildup.

2. Load levels as defined by the manufacturer must be observed.

3. The best preservation is achieved by following these rules:
   a) Buy quality products.
   b) Receive perishables from transit equipment at the ideal temperature for the particular product.
   c) Expedite perishables to the store's storage equipment to avoid unnecessary warm-up and prolonged temperature recovery. Food store refrigerators are not food chillers nor can they reclaim quality lost through previous mishandling.
   d) Care must be taken when cross merchandising products to ensure that potentially hazardous vegetable products are not placed in non refrigerated areas.
   e) Display and storage equipment doors should be kept closed during periods of inactivity.
   f) Minimize the transfer time of perishables from storage to display.
   g) Keep meat under refrigeration in meat cutting and processing area except for the few moments it is being handled in processing. When a cut or tray of meat is not to be worked on immediately, the procedure should call for returning it to refrigeration.
   h) Keep tools clean and sanitized. Since mechanical equipment is used for fresh meat processing, all such equipment should be cleaned at least daily and each time a different kind of meat product comes in contact with the tool or equipment.
   i) Make sure that all refrigeration equipment is installed and adjusted in strict accordance with the manufacturer's recommendations.
   j) See that all storage and refrigeration equipment is kept in proper working order by routine maintenance.

DBRP					PGM0012A01	
					STANDARD CASE REV A 8/7/17	
Parameter	**Co e**	**Min**	**Ma**	**Default**	**A tual (C)**	**A tual (F)**
Temperature (set point)						
roduce (Type I)	---	-50.0°C	50.0°C	2.0°C	-2.2	28
Thermostat						
Differential	r01	0.1 K	20.0K	2.0 K	3.9	7
Max. limitation of setpoint setting	r02	-49.0°C	50°C	50.0°C	4.4	40
Min. limitation of setpoint setting	r03	-50.0°C	49.0°C	-50.0°C	-3.9	25
Adjustment of temperature indication	r04	-20.0 K	20.0 K	0.0 K	0.0 K	
Temperature unit (°C=0/°F=1)	r05	0	1	0	1	
Correction of the signal from S4	r09	-10.0 K	+10.0 K	0.0 K	0.0 K	
Correction of the signal from S3	r10	-10.0 K	+10.0 K	0.0 K	0.0 K	
Manual service, stop regulation, start regulation (-1, 0, 1)	r12	-1	1	0	1	
Displacement of reference during night operation	r13	-10.0 K	10.0 K	0.0 K	0.0 K	
Definition and weighting, if applicable, of thermostat sensors - S4% (100%=S4, 0%=S3)	r15	0%	100%	100%	100%	
The heating function is started a number of degrees below the thermostats cutout temperature	r36	-15.0 K	-3.0 K	-15.0 K	-15.0 K	
Activation of reference displacement r40	r39	OFF	ON	OFF	OFF	
Value of reference displacement (activate via r39 or DI)	r40	-50.0 K	50.0 K	0.0 K	0.0 K	
Alarm						
Delay for temperature alarm	A03	0 min	240 min	30 min	30 min	
Delay for door alarm	A04	0 min	240 min	60 min	60 min	
Delay for temperature alarm after defrost	A12	0 min	240 min	90 min	60	
:igh alarm limit	A13	-50.0°C	50.0°C	8.0°C	7.8	46
;ow alarm limit	A14	-50.0°C	50.0°C	-30.0°C	-5.6	22
Alarm delay DI1	A27	0 min	240 min	30 min	30 min	
Alarm delay DI2	A28	0 min	240 min	30 min	30 min	
Signal for alarm thermostat. S4% (100%=S4, 0%=S3)	A36	0%	100%	100%	100%	
Compressor						
Min. ON-time	c01	0 min	30 min	0 min	1	
Min. OFF-time	c02	0 min	30 min	0 min	2	
Time delay for cutin of comp.2	c05	0 sec	999 sec	0 sec	0 sec	
Compressor relay 1 must cutin and out inversely (NC-function)	c30	0 OFF	1 ON	0 OFF	0 OFF	
Defrost						
Defrost method (none/<;/=AS/>RIN<)	d01	no	bri	<;	<;	
Defrost stop temperature	d02	0.0°C	25.0°C	6.0°C	12.2	54
Interval between defrost starts	d03	0 hours	240 hours	8 hours	6	
Max. defrost duration	d04	0 min	180 min	45 min	30	
Displacement of time on cutin of defrost at start-up	d05	0 min	240 min	0 min	0 min	
Drip off time	d06	0 min	60 min	0 min	0 min	
Delay for fan start after defrost	d07	0 min	60 min	0 min	0 min	
Fan start temperature	d08	-15.0°C	0.0°C	-5.0°C	-5.0°C	
Fan cutin during defrost 0: Stopped 1: Running 2: Running during pump down and defrost	d09	0	2	1	1	
Defrost Sensor (0=time, 1=S5. 2=S4)	d10	0	2	0	0	
ump down delay	d16	0 min	60 min	0 min	0 min	
Drain delay	d17	0 min	60 min	0 min	0 min	
Max. aggregate refrigeration time between two defrosts	d18	0 hours	48 hours	0 hours		
Defrost on demand - S5 temperature's permitted variation during frost build-up. On central plant choose 20 K (=off)	d19	0.0 K	20.0 k	20.0 K		
Delay of hot gas defrost	d23	0 min	60 min	0 min	0 min	
Fan						
Fan stop at cutout compressor	F01	no	yes	no	no	
Delay of fan stop	F02	0 min	30 min	0 min	0 min	
Fan stop temperature (S5)	F04	-50.0°C	50.0°C	50.0°C	50.0°C	

Controller Parameters (Cont'd)

HACCP						
Actual temperature measurement for the HACCP	h01					
Last registered peak temperature	h10					
Selection of function and sensor for the HACCP HACCP function. 1 = S4 used (maybe also S3). 2 = S5	h11	0	2	0	0	
Alarm limit for the HACCP function	h12	-50.0°C	50.0°C	8.0°C	8.0°C	
Time delay for the HACCP alarm	h13	0 min.	240 min.	30 min.	30 min.	
Select signal for the HACCP function. S4% (100% = S4,	h14	0%	100%	100%	100%	
Real time clock						
Six start times for defrost. Setting of hours. 0=OFF	t01-t06	0 hours	23 hours	0 hours	0 hours	
Six start times for defrost. Setting of minutes. 0=OFF	t11-t16	0 min	59 min	0 min	0 min	
Clock - Setting of hours	t07	0 hours	23 hours	0 hours	0 hours	
Clock - Setting of minute	t08	0 min	59 min	0 min	0 min	
Clock - Setting of date	t45	1	31	1	1	
Clock - Setting of month	t46	1	12	1	1	
Clock - Setting of year	t47	0	99	0	0	
Miscellaneous						
Delay of output signals after start-up	o01	0 s	600 s	5 s	5 s	
input signal on Di1. Function4	o02	1	11	0	0	
Network address	o03	0	240	0	0	
On/Off switch (Service Pin message)	o04	OFF	ON	OFF	OFF	
Access code 1 (all settings)	o05	0	100	0	0	
9sed sensor type (Pt /PTC/NTC)	o06	Pt	ntc	Pt	Pt	
Display step = 0.5 (normal 0.1 at Pt sensor)	o15	no	yes	no	no	
Max hold time after coordinated defrost	o16	0 min	60 min	20	20	
Select signal for display view. S4% (100%=S4, 0%=S3)	o17	0%	100%	100%	100%	
input signal on Di2. Function4	o37	0	12	0	0	
Configuration of light function (relay 4)	o38	1	3	1	1	
Activation of light relay (only if o38=2)	o39	OFF	ON	OFF	OFF	
Rail heat On time during day operations	o41	0%	100%	100	100	
Rail heat On time during night operations	o42	0%	100%	100	100	
Rail heat period time (On time < Off time)	o43	6 min	60 min	10 min	10 min	
Case cleaning. 0=no case cleaning. 1=Fans only. 2=All	o46	0	2	0	0	
Selection of EL diagram. See overview page 6	o61	1	10	1	1	
Download a set of predetermined settings. See	o62	0	6	0	0	
Access code 2 (partly access)	o64	0	100	0	0	
Save the controllers present settings to the	o65	0	25	0	0	
Load a set of settings from the programming key	o66	0	25	0	0	
Replace the controllers factory settings with the	o67	OFF	On	OFF	OFF	
Service						
Status codes are shown on page 17	S0-S33					
Temperature measured with S5 sensor	u09					
Status on Di1 input. on/1=closed	u10					
Temperature measured with S3 sensor	u12					
Status on night operation (on or off) 1=closed	u13					
Temperature measured with S4 sensor	u16					
Thermostat temperature	u17					
Read the present regulation reference	u28					
Status on Di2 output. on/1=closed	u37					
Temperature shown on display	u56					
Measured temperature for alarm thermostat	u57					
Status on relay for cooling	u58					
Status on relay for fan	u59					
Status on relay for defrost	u60					
Status on relay for railheat	u61					
Status on relay for alarm	u62					
Status on relay for light	u63					
Status on relay for valve in suction line	u64					
Status on relay for compressor 2	u67					

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.

Danfoss Controller Operations

ENGINEERING TOMORROW

User Guide

Controller for temperature control
AK-CC 210

ADAP-KOOL® Refrigeration control systems

1. Open Camera

2. IPhone User
Hold the camera up to the QR code

Android User
Open QR Code Reader app if necessary.
Hold the camera up to the QR code

3. Tap the notification to be taken to the destination of the QR code

Dixell Controller Operations

026-1210 Rev 3 03-FEB-2015

XR75CX Digital Controller for Medium-Low Temperature Refrigeration Applications Installation and Operation Manual

① Open Camera

② IPhone User
Hold the camera up to the QR code

Android User
Open QR Code Reader app if necessary.
Hold the camera up to the QR code

③ Tap the notification to be taken to the destination of the QR code

Service Record

Last service date:	By:

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The *MODEL NAME* and *SERIAL NUMBER* is required in order to provide you with the correct parts and information for your particular unit.
They can be found on a small metal plate on the unit. Please note them below for future reference.

MODEL:

SERIAL NUMBER: