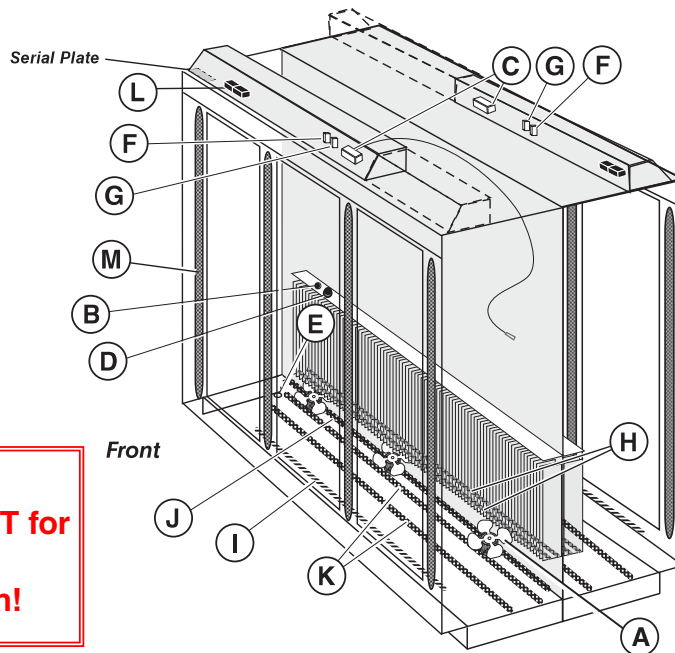


We reserve the right to change or revise specifications and product design in connection with any feature of our products. Such changes do not entitle the buyer to corresponding changes, improvements, additions or replacements for equipment previously sold or shipped.



Warning:
Terminal block **NOT** for
case-to-case
wire connection!

Refrigeration and
electrical connections
are on top. Overhead
piping and electrical
circuits are required.

Item	Part #	Description	Wiring Item #	Item	Part #	Description	Wiring Item #
FAN ASSEMBLIES, AND THERMOSTATS				HEATERS (CONTINUED)			
A.	Fan Assembly		(1)	J.	Koolgas Supplemental Heater Plenum (120V)		(10)
	0477658	Standard Energy Efficient motor (MO.4410549)			0452980	(2) 2 Door Models (HE.4850576)	
	0315470	Fan Blade (FB.0315470)			0452981	(2) 3 Door Models (HE.4850577)	
B.	0331798	Standard Non-adjustable Defrost Thermostat (CT.4440256)	(2)		0452982	(2) 4 Door Models (HE.4850510)	
C.		Opt. Adj. Refrigeration Thermostat	(3)		0452983	(2) 5 Door Models (HE.4850578)	
D.	0440423	Defrost Limit Thermostat (CT.4481089)	(4)	K.	Koolgas Supplemental Heater Bottom (120V)		(11)
E.	0446007	Relay Control Thermostat or Fan and Anti-sweat Heater Thermostat (CT.4440353)	(5)		0452970	(2) 2 Door Models (HE.4850350)	
RELAYS					0452971	(2) 3 Door Models (HE.4850506)	
F.	0342598	Anti-Sweat Control Relay (120V Koolgas) (RL.4480238)	(6)		0452972	(2) 4 Door Models (HE.4850661)	
G.	0342599	Fan Control Relay (208V) (RL.4480237)	(7)		0452973	(2) 5 Door Models (HE.4850507)	
HEATERS				LED FIXTURES AND POWER SUPPLY			
H.	Electric Defrost Heaters (208V)		(8)		<i>Innovator Doors Standard</i>		
	0461938	(2) 2 Door Models (HE.4850354)		L.	0499399	Power Supply	
	0461939	(2) 3 Door Models (HE.4850355)		M.		LED Fixture	
	0461940	(2) 4 Door Models (HE.4850356)				<i>Replace with like fixtures</i>	
	0461941	(2) 5 Door Models (HE.4850357)		NOTE: For LED lighting parts contact your Hussmann service representative at 1-800-922-1919. Please have your model and serial number available. Descriptions including size and color are at WWW.HUSSMANN.COM/SERVICEANDPARTS.			
I.	Drain Pan Heater Electric & Koolgas (120V)		(9)	<div style="border: 1px solid black; padding: 5px;"> <p><i>Refer to INNOVATOR REACH-IN GLASS DOOR INSTALLATION AND SERVICE manual, PIN 0425683, for Innovator, Innovator II, or Innovator III door and frame replacement parts.</i></p> </div>			
	0508199	(2) 2 Door Models (HE.4851029)					
	0508200	(2) 3 Door Models (HE.4851030)					
	0508201	(2) 4 Door Models (HE.4850987)					
	0508202	(2) 5 Door Models (HE.4850988)					

Note: Revision E adds EcoShine II LEDs. Other changes marked by a bar in margin.



Engineering Plan Views

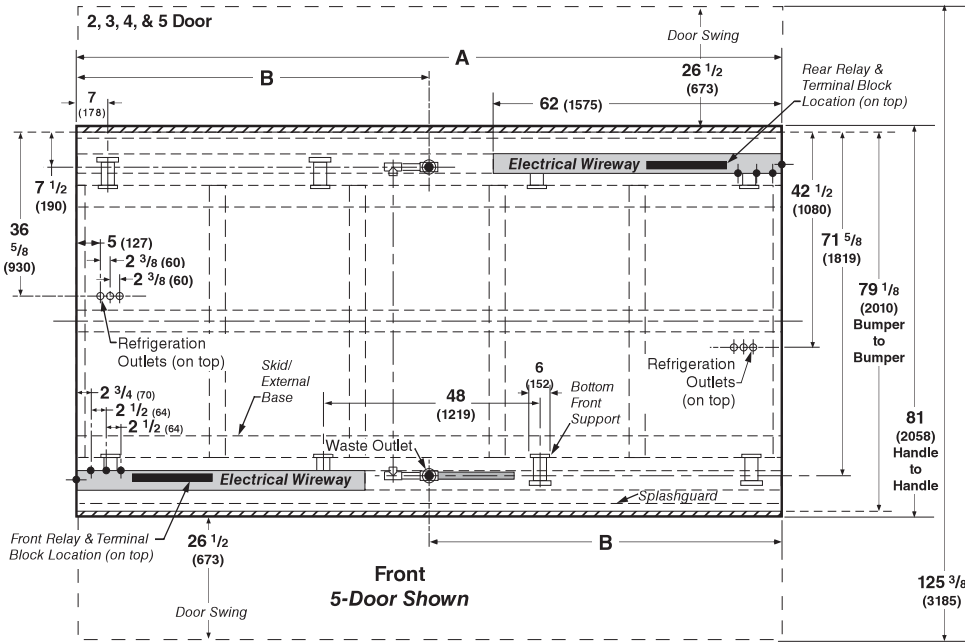
RLTI Plan View 2, 3, 4, & 5 Door

Dimensions shown as in. & (mm).

PHYSICAL DATA

Merchandise Drip Pipe (in.)	1 1/4
Merchandise Liquid Line (in.)	3/8
Merchandise Suction Line (in.)	7/8

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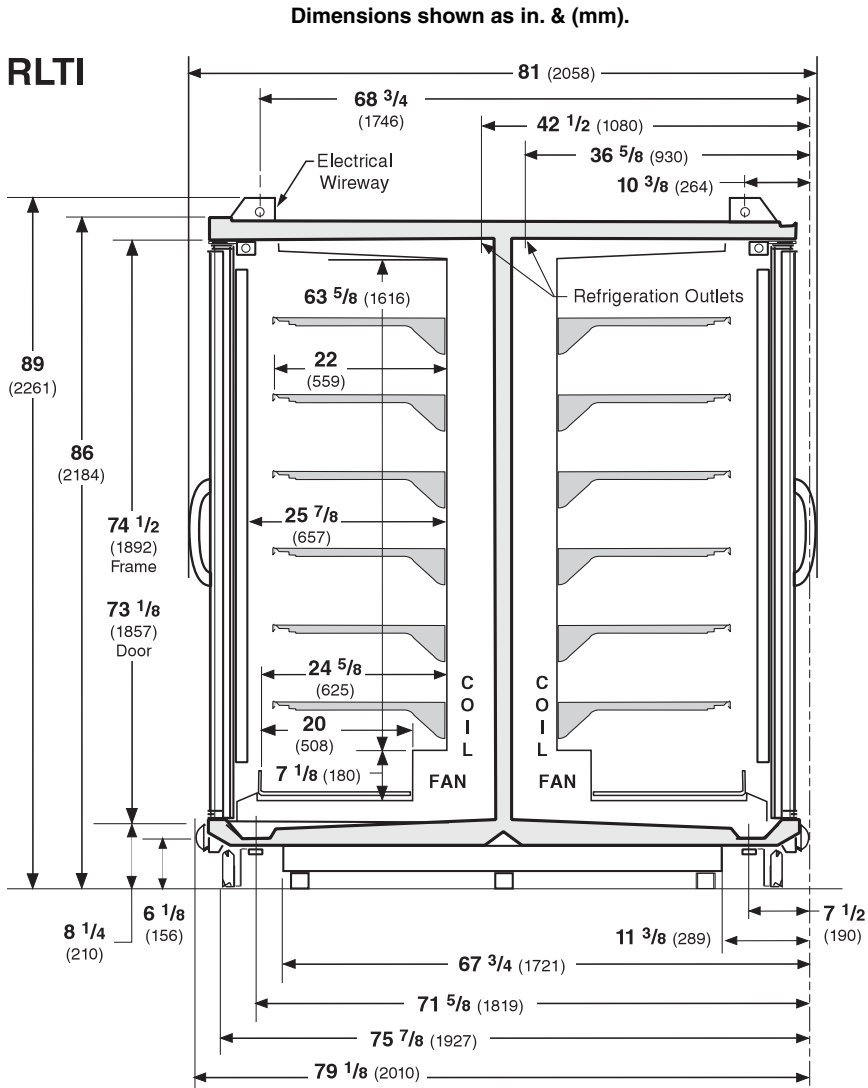
Refrigeration and electrical connections are on top. Overhead piping and electrical circuits are required.

Serial Plate attached to top left front of each case.	2 Dr	3 Dr	4 Dr	5 Dr
General				
(A) Case Length (without ends or partitions) <i>(Each solid end adds 2 in. (51 mm) to length of lineup; each window end or insulated partition adds 1 1/2 in. (38 mm).</i>	62 (1575)	92 1/2 (2350)	122 7/8 (3121)	153 3/8 (3896)
Maximum O/S dimension of case back to front <i>(Includes bumpers and handles)</i>	81 (2068)	81 (2068)	81 (2068)	81 (2068)
Back of case to rear of splashguard	74 3/4 (1899)	74 3/4 (1899)	74 3/4 (1899)	74 3/4 (1899)
Width of Skid rail	3 3/4 (95)	3 3/4 (95)	3 3/4 (95)	3 3/4 (95)
Width of Bottom Front Support	6 (152)	6 (152)	6 (152)	6 (152)
Stub-up area between front skid rail and splashguard	6 3/8 (161)	6 3/8 (161)	6 3/8 (161)	6 3/8 (161)
Electrical Service				
Left hand end of case to the center of nearest knockout	2 3/4 (70)	2 3/4 (70)	2 3/4 (70)	2 3/4 (70)
Right hand end of case to the center of center knockout	56 3/4 (1441)	87 1/4 (2216)	117 5/8 (2988)	148 1/8 (3762)
Back O/S of case to center of front knockout	43 1/4 (1099)	43 1/4 (1099)	43 1/4 (1099)	43 1/4 (1099)
Back O/S of case to center of rear knockout	10 3/8 (264)	10 3/8 (264)	10 3/8 (264)	10 3/8 (264)
<i>*NOTE: Electrical Field Wiring Connection Point is at terminal. Front and rear are wired separately.</i>				
Waste Outlet				
(B) Right end of case to center of waste outlet	23 7/8 (606)	54 1/4 (1378)	46 1/4 (1175)	76 5/8 (1946)
Back O/S of case to center of waste outlet	71 3/8 (1814)	71 3/8 (1814)	71 3/8 (1814)	71 3/8 (1814)
Water Seal				
Edge of water seal to center of waste outlet	13 (330)	13 (330)	13 (330)	13 (330)
Schedule 40 drip piping	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)	1 1/4 (32)
<i>**NOTE: Field installed water seal outlets, tees, and connectors are shipped with case</i>				
Refrigeration Outlet (TOP OF MERCHANDISER)				
RH end of case to center of front refrigeration outlet	7 1/4 (184)	7 1/4 (184)	7 1/4 (184)	7 1/4 (184)
RH end of case to center of rear refrigeration outlet	54 3/4 (1391)	85 1/4 (2166)	115 5/8 (2937)	146 1/8 (3712)
Back O/S of case to center of front refrigeration outlet	43 1/4 (1099)	43 1/4 (1099)	43 1/4 (1099)	43 1/4 (1099)
Back O/S of case to center of rear refrigeration outlet	35 1/8 (892)	35 1/8 (892)	35 1/8 (892)	35 1/8 (892)
Outside bottom front supports from end of case	6 3/4 (170)	6 3/4 (170)	6 3/4 (170)	6 3/4 (170)
Center bottom front support from Centerline	24 (610)	24 (610)	24 (610)	24 (610)
<i>Distance between Center and Outside supports will vary</i>				

RLTI
With Innovator Doors
Low Temperature

Refrigeration data is PER SIDE.

Refrigeration and electrical connections are on top.
Overhead piping and electrical circuits are required.



NSF Certification

This merchandiser model is manufactured to meet NSF/ANSI (National Sanitation Foundation) Standard #7 requirements for construction, materials & cleanability.

REFRIGERATION DATA

Note: This data is based on store temperature and humidity that does not exceed 75°F and 55% R.H.

	FF	IC
Discharge Air (°F)	-5	-12
Evaporator (°F)	-11	-19
Unit Sizing (°F)	-14	-22

<i>Btu/hr/door/side*</i>	FF	IC
INNOVATOR		
Parallel	1160	1230
Conventional	1180	1255

* Optional Ecoshine 27W LED's add 20 Btu/hr/door/side.

DEFROST DATA

	FF	IC
Frequency (hr)	24	24
Defrost Water (lb/Dr/side/day)	1.2	1.2

(± 15% based on case configuration and product loading).

<i>ELECTRIC</i>	FF	IC
Temp Term (°F)	54°	54°
Failsafe (minutes)	48	48
GAS		
Duration (minutes)	22	22
OFFTIME	Not Recommended	

CONVENTIONAL CONTROLS

Low Pressure Backup Control

	FF	IC
CI/CO (Temp °F)**	-18°/-34°	-26°/-45°

Indoor Unit Only, Pressure Defrost Termination (Temp °F)**

Not Recommended

**Use a Temperature Pressure Chart to determine PSIG conversions.

Estimated Charge per Side ***

2 Dr	3.2 lb	51 oz	1.5 kg
3 Dr	4.7 lb	75 oz	2.1 kg
4 Dr	6.3 lb	101 oz	2.9 kg
5 Dr	8.1 lb	130 oz	3.7 kg

***This is an average for all refrigerant types.

Actual refrigerant charge may vary by approximately half a pound (8 oz / 0.2 kg).

RLTI

With *Innovator* Doors
Low Temperature

Husmann recommends against frame heater cycling with *Innovator* doors to prevent door seals from freezing to the frames and tearing.

Electrical data is per side — two circuits required per case.

Electrical Data

Number of Fans	2Dr	3Dr	4Dr	5Dr				
	2	3	4	5				
	Amperes				Watts			
	2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr	5Dr
Energy Efficient Evaporator Fan								
120V 50/60Hz Innovator	0.8	1.3	1.7	2.7	100	150	200	250
220V 50/60Hz Export Innovator	0.3	0.45	0.6	0.75	36	54	72	90
Door Anti-sweat Heaters (on fan circuit)								
120V 50/60Hz Innovator	1.4	2.0	2.7	3.4	162	244	325	406
220V 50/60Hz Export Innovator	0.7	1.1	1.5	1.8	153	230	306	382
Frame Anti-sweat Heaters (on fan circuit)								
120V 50/60Hz Innovator	0.96	1.43	1.92	2.4	115	172	230	288
220V 50/60Hz Export Innovator	0.5	0.8	1.1	1.3	115	172	230	288
Minimum Circuit Ampacity								
120V 50/60Hz Innovator Electric Defrost	4.2	6.1	8.1	10.1				
120V 50/60Hz Innovator Koolgas Defrost	6.9	10.4	14.0	17.6				
220V 50/60Hz Exp Innovator Electric Defrost	2.3	3.5	4.6	5.6				
220V 50/60Hz Exp. Innovator Koolgas Defrost	3.8	5.8	7.8	9.6				
Maximum Over Current Protection 120V	20	20	20	20				
Maximum Over Current Protection 220V	20	20	20	20				

Defrost

Drain Heaters (Kool-Gas or Electric)										
120V	50/60Hz	Standard	1.0	1.5	2.0	2.5	120	180	240	300
220V	50/60Hz	Export	0.5	0.75	1.0	1.25	110	165	220	275
Kool-Gas Supplemental Heaters										
120V	50/60Hzz	Standard	4.3	6.8	9.2	11.6	516	814	1102	1390
220V	550/60Hz	Export	2.4	3.7	5.0	6.3	472	744	1007	1270
Electric Defrost Heater										
208V	50/60Hzz	Standard	7.7	11.5	15.4	19.2	1600	2400	3200	4000
220V	50/60Hz	Export	6.7	10.0	13.3	16.6	1465	2200	2930	3660

Standard Vertical LED Lighting 4100K	2Dr	3Dr	4Dr	5Dr	2Dr	3Dr	4Dr	5Dr
Husmann EcoShine II™ [22 W] (120V)	0.36	0.54	0.72	0.90	43	65	86	108
Husmann EcoShine II™ [22 W] (220V Export)	0.20	0.29	0.39	0.49	43	65	86	108
Optional Vertical LED Lighting								
Husmann EcoShine™ [27 W] (120V)	0.45	0.68	0.90	1.13	54	81	108	135
Husmann EcoShine™ [27 W] (220V Export)	0.25	0.37	0.49	0.61	54	81	108	135
Husmann EcoShine™ EP [16 W] (120V)	0.27	0.40	0.53	0.67	32	48	64	80
Husmann EcoShine™ EP [16 W] (220V Exp)	0.15	0.22	0.29	0.36	32	48	64	80
GE Illumination (120V)	0.30	0.45	0.60	0.75	36	54	72	90
GE Illumination (220V Export)	0.16	0.25	0.33	0.41	36	54	72	90

Product data is PER SIDE.

Product Data

<i>Recommended Usable Cube</i> ¹ (Cu Ft/Dr)	24.95 ft ³ /Dr (0.71 m ³ /Dr)
<i>AHRI Total Display Area</i> ² (Sq Ft/Dr)	13.59 ft ² /Dr (1.26 m ² /Dr)
<i>Shelf Area</i> ³ (Sq Ft/Dr)	32.38 ft ² /Dr (3.01 m ² /Dr)

¹ AHRI Refrigerated Volume less shelving and other unusable space: Refrigerated Volume/Unit of Length, ft³/ft [m³/m]
² Computed using AHRI 1200 standard methodology: Total Display Area, ft² [m²]/Unit of Length, ft [m]
³ Shelf surface area is composed of bottom deck plus standard shelf complement, as shown in the Hussmann *Product Reference Guide*. The standard shelf complement for this model is (6) rows of 22-inch shelves.

ESTIMATED SHIPPING WEIGHT ⁴						
Case	1 Dr	2 Dr	3 Dr	4 Dr	5 Dr	Solid End (each)
lb (kg)	NA (NA)	1667 (756)	2322 (1053)	2945 (1336)	3611 (1637)	120 (55)

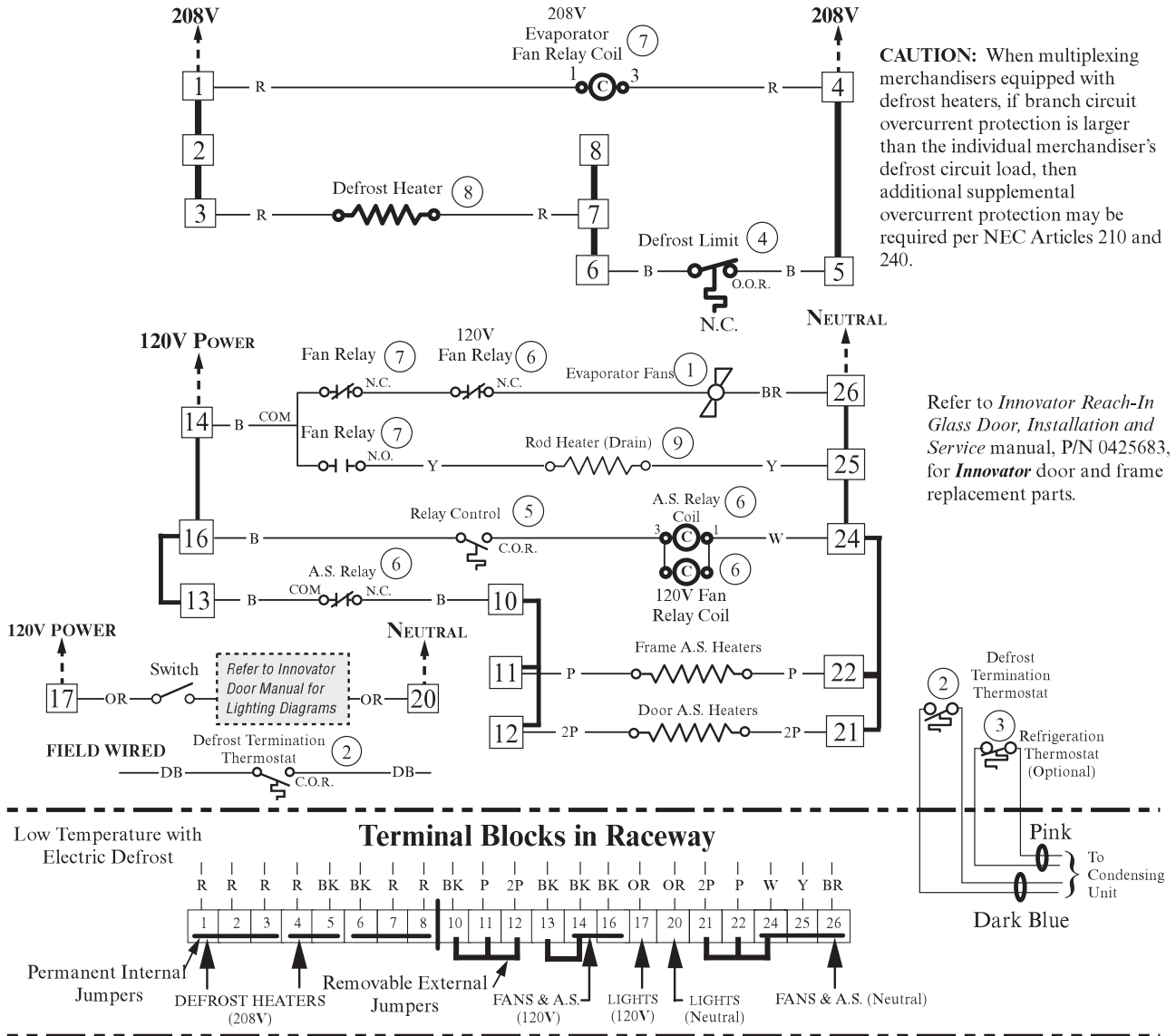
⁴ Actual weights will vary according to optional kits included.

Fan and Heater Circuits — Electric Defrost (standard)

Low Temperature

Wiring Diagram is per side — two circuits required per case.

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS
 R = Red P = Purple 2P = Purple (2 Bands) DB = Dark Blue BK = Black
 LB = Light Blue Pink = Pink BR = Brown Y = Yellow OR = Orange W = White
THESE ARE MARKER COLORS (WIRE MAY VARY)



Electric Defrost Sequence - Low Temperature

1. Power from the defrost contactor energizes Defrost Heaters and 208V Evaporator Fan Relay Coil (7). Relay Contacts open the fan circuit and energizes the Drain Pan Heater.
2. If the Defrost Heater raises internal air temperature above 90°F, the Defrost Limit Thermostat (4) will open.
3. Temperature rise of the evaporator closes the Relay Control Thermostat (5) at about 35°F, energizing 120V A.S. Relay Coils (6). These relays' contacts open the Frame and Door Heater Circuits, and prevent the Fan Circuit from energizing upon defrost termination.
4. When Defrost Termination Thermostat ends defrost period, the defrost contactor opens the Defrost Heater and Evaporator Fan Relay Coil Circuits. The Drain Pan Heater goes off.
5. Temperature fall of the evaporator opens the Relay Control Thermostat (5) at about 20°F, de-energizing 120V A.S. Relay Coils (6). A.S. Relay Contacts close the Frame and Door Heater Circuits, and Fan Circuit.

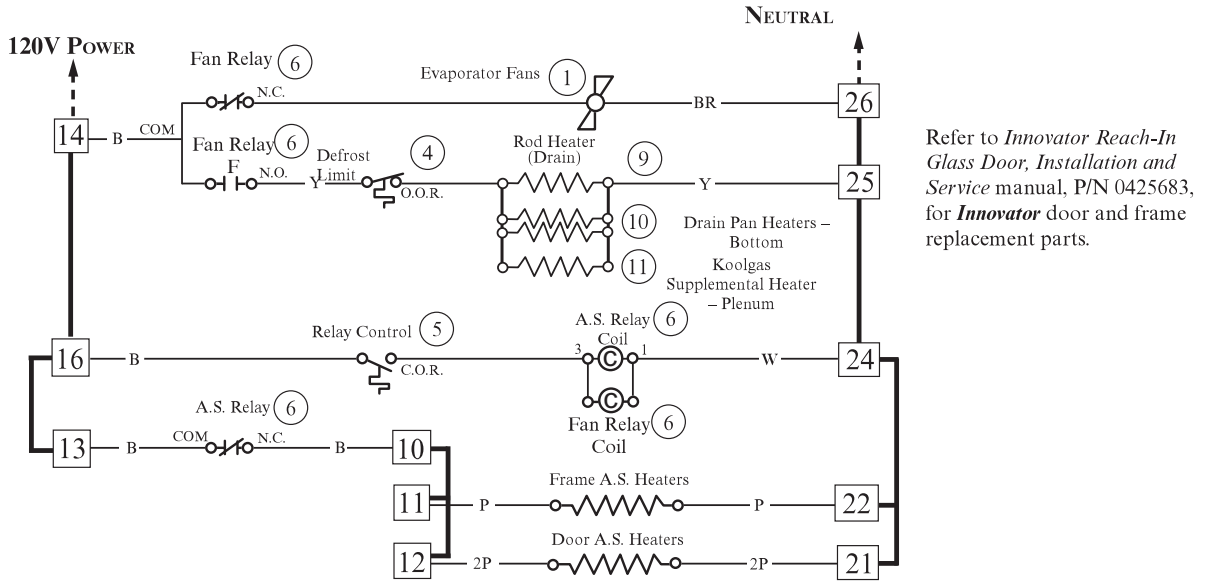
Wiring Diagram is per side — two circuits required per case.

Fan and Heater Circuits — Gas Defrost (optional)

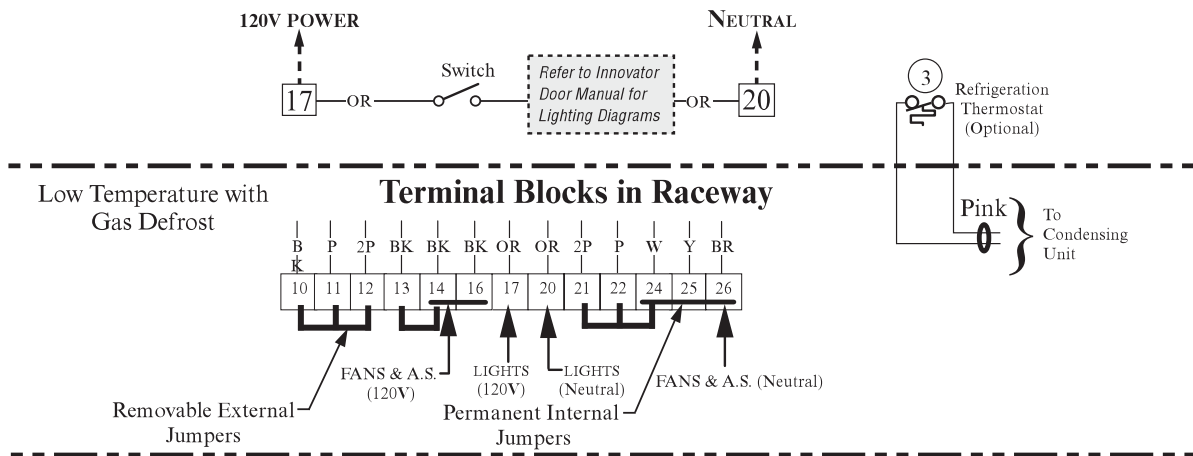
Low Temperature

Wiring Diagram is per side — two circuits required per case.

CIRCLED NUMBERS = PARTS LIST ITEM NUMBERS
 R = Red P = Purple 2P = Purple (2 Bands) DB = Dark Blue BK = Black
 LB = Light Blue Pink = Pink BR = Brown Y = Yellow OR = Orange W = White
THESE ARE MARKER COLORS (WIRE MAY VARY)



Refer to *Innovator Reach-In Glass Door, Installation and Service manual*, P/N 0425683, for *Innovator* door and frame replacement parts.



Gas Defrost Sequence - Low Temperature

1. Defrost vapor enters evaporator causing a rise in temperature. At about 35°F the Control Relay Thermostat (5) closes the Fan Relay Coil and Control Relay Coil (6) circuit. The Coil opens the Fan, Door Heater, and Frame Heater circuits, while energizing the Drain Pan, Bottom, and Plenum Heaters (9), (10) and (11).
2. If the Drain Pan Heater (9) raises internal air temperature above 90°F, the Heater Limit Thermostat (4) will open.
3. When the defrost timer ends a defrost period, the evaporator temperature will start to fall. At about 20°F, the Control Relay Thermostat will open, de-energizing the Control Relay Coil and Fan Relay Coil (7). Control and Fan Relay's will open the Drain Pan Heater circuits, and will close the Fan, Door Heater, and Frame Heater circuits.

Wiring Diagram is per side — two circuits required per case.