

Tuttokool R454B TPHM Series Packaged Rooftop

TPHM Series

Cooling capacity: 24-60 kBtu/h



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Standard Features:

- Quiet horizontal discharge.
- Compatible with side and bottom air discharge
- Power-painted galvanized steel cabinet.
- Electric heat kit available as a field-installed option: 5/8/10/15/20kW.
- High-efficiency compressors operate smoothly, quietly, and consistently.
- Internal safeguards protect the compressor against high and low pressure, and coil temperature.
- Aluminum tube/aluminum fin coil.
- High-efficiency ECM blower motor.
- AHRI Certified and ETL listed.
- Compliant with UL-60335 certification.
- Uses more environmentally friendly R454B refrigerant.
- Full DC variable speed condenser motor, more efficient, smarter, and quieter.

TPHM Series Rooftop Package

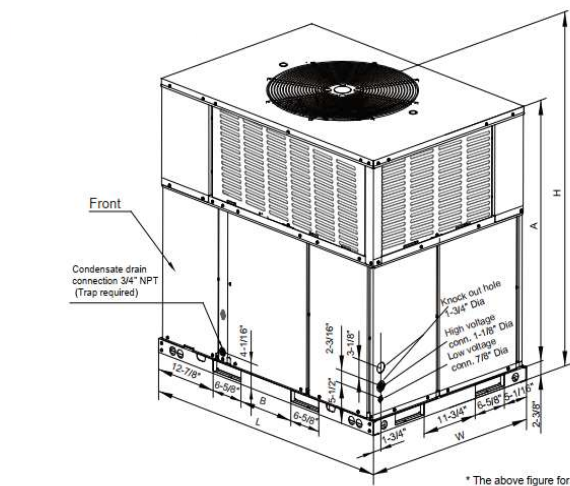
1 Product lineup

Model	TPHM4024100A TPHM4036100A TPHM4048100A TPHM4060100A
Power Supply	208/230V-1Ph-60Hz
Appearance	

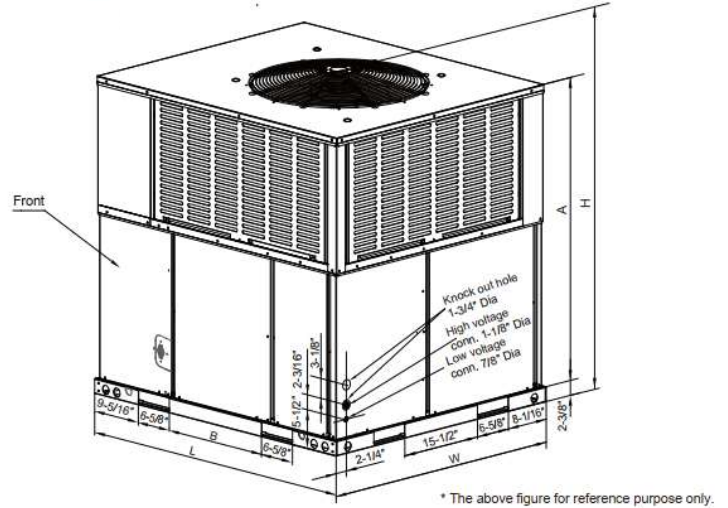
TPHM Series Rooftop Package

	TPHM4024100A	TPHM4036100A	TPHM4048100A	TPHM4060100A
NOMINAL CAPACITY				
Cooling (BTU/h)	22,800	34,000	46,500	56,500
Heating (BTU/h)	22,800	34,200	45,600	57,000
ELECTRICAL DATA				
Voltage / Phase (60 Hz)	208/230V-1Ph	208/230V-1Ph	208/230V-1Ph	208/230V-3Ph
Min. / Max. Voltage (V)	187/253	187/253	187/253	187/253
Min. Circuit Amps (MCA) (A)	17.8	27.7	33.9	42.8
Max. Overcurrent Protection (MOP) (A)	25	35	45	50
COMPRESSOR				
Type	Rotary	Rotary	Scroll	Scroll
Stage	Single	Single	Single	Single
Rated Load Amps (RLA) (A)	12	18	22	28
Locked Rotor Amps (LRA) (A)	55	72	95	125
OUTDOOR COIL				
Type	Tube & Fin	Tube & Fin	Tube & Fin	Tube & Fin
Tube Size (O.D) (in)	9/32	9/32	9/32	9/32
OUTDOOR FAN MOTOR				
Motor Type	PSC	PSC	PSC	PSC
Capacitor (uF)	6	6	15	15
Horsepower (HP)	1/12	1/6	1/3	1/3
Full Load Amps (FLA) (A)	0.8	1.0	2.1	2.1
Rated RPM	878	840	1,050	1,050
INDOOR COIL				
Type	Tube & Fin	Tube & Fin	Tube & Fin	Tube & Fin
Tube Size (O.D) (in)	9/32	9/32	9/32	9/32
INDOOR BLOWER MOTOR				
Motor Type	PSC	ECM	PSC	ECM
Capacitor (uF)	12	/	20	/
Horsepower (HP)	1/5	1/2	4/5	3/4
Full Load Amps (FLA) (A)	2	4.2	4.3	5.7
Rated RPM	908	880	976	950
REFRIGERATION SYSTEM				
Refrigerant Control	Orifice	Orifice	Orifice	Orifice
Refrigerant Charge (lbs. - oz.)	5 lbs. 10 oz.	6 lbs. 13 oz.	8 lbs. 3 oz.	9 lbs. 8 oz.
SOUND POWER (dB(A))	78	78	80	80
OPERATION RANGE				
Cooling (°C)	10~51.7	10~51.7	10~51.7	10~51.7
Cooling (°F)	50~125	50~125	50~125	50~125
Heating (°C)	-15~30	-15~30	-15~30	-15~30
Heating (°F)	5~86	5~86	5~86	5~86
Dimension & Weight				
Unpacking (W*H*D) mm	891 x 1190 x 1287	891 x 1190 x 1287	1140 x 1306 x 1310	1140 x 1306 x 1310
Unpacking (W*H*D) inch	35-1/16 x 46-13/16 x 50-11/16	35-1/16 x 46-13/16 x 50-11/16	44-13/16 x 51-7/16 x 51-9/16	44-13/16 x 51-7/16 x 51-9/16
Packing (W*H*D) mm	937 x 1256 x 1330	937 x 1256 x 1330	1164 x 1329 x 1339	1164 x 1329 x 1339
Packing (W*H*D) inch	36-7/8 x 49-7/16 x 52-3/8	36-7/8 x 49-7/16 x 52-3/8	45-5/6 x 52-1/3 x 52-5/7	45-5/6 x 52-1/3 x 52-5/7
Net/Gross weight kg	180/189	189/198	247/255	250/258
Net/Gross weight lb	397/416	415/435	544/562	551/569
Shipping per STD 40HQ	42	42	31	31

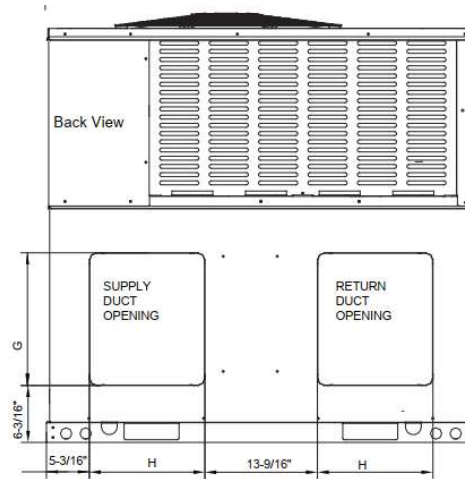
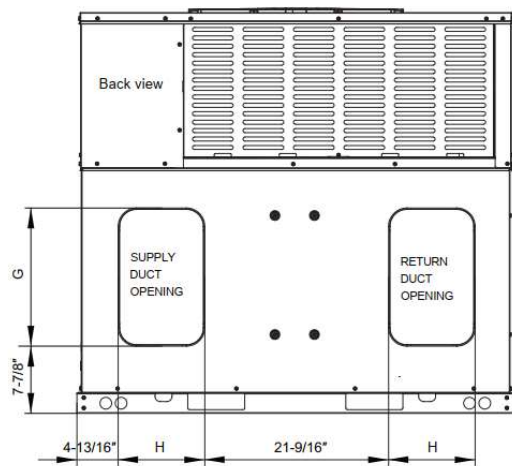
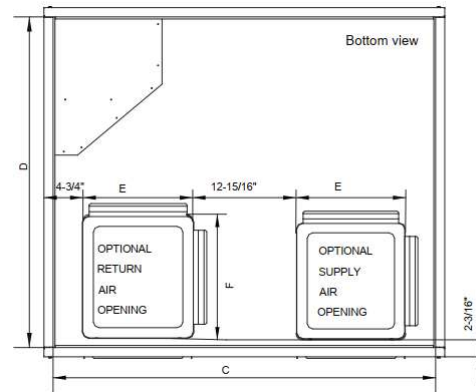
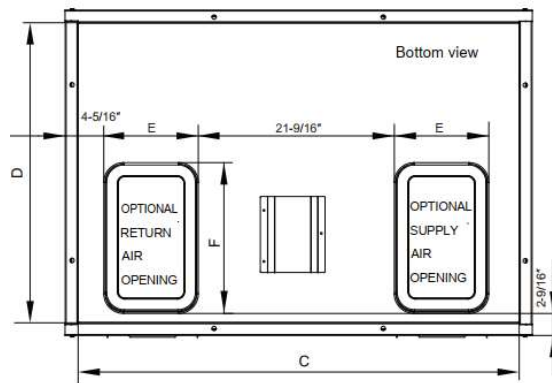
4 Dimensional Drawing



* The above figure for



* The above figure for reference purpose only.



Model	"L" in.[mm]	"W" in.[mm]	"H" in.[mm]	"A" in.[mm]	"B" in.[mm]
24,36	50-11/16 [1287]	35-1/16 [891]	46-13/16 [1190]	44-1/16 [1120]	11-3/4 [298]
48,60	51-9/16 [1310]	44-13/16 [1140]	51-7/16 [1306]	47-5/16 [1202]	19-11/16 [500]

Model	"C" in.[mm]	"D" in.[mm]	"E" in.[mm]	"F" in.[mm]	"G" in.[mm]	"H" in.[mm]
24,36	47-13/16 [1215]	32-1/4 [820]	9-15/16 [252]	15-7/8 [403]	15-3/4 [400]	9-3/4 [249]
48,60	49-1/4 [1250]	42-1/2 [1080]	14-1/8 [358]	16-1/8 [409]	15-7/8 [403]	13-7/8 [352]

TPHM Series Rooftop Package

5 Electrical Heater Kit (Optional)

Electric Heater Kit Electrical Data (only Electric Heat)

Heater Kit Model Used	Air Handler Model	EHK Power kW	Stage	EHK Circuit (Amps)	Min. Circuit Ampacity (A)		Max. Fuse or Breaker (HACR) Ampacity (A)	
					240V	208V	240V	208V
EHK-05J	24	3.8/5	1	18.1/20.8	26	23	30	25
EHK-08J		5.6/7.5	1	27.1/31.3	40	34	40	35
EHK-10J		7.5/10	1	36.1/41.7	53	46	60	50
EHK-05J	36	3.8/5	1	18.1/20.8	26	23	30	25
EHK-08J		5.6/7.5	1	27.1/31.3	40	34	40	35
EHK-10J		7.5/10	1	36.1/41.7	53	46	60	50
EHK-15J		11.3/15	2	54.2/62.5	79	68	80	70
EHK-05J	48	3.8/5	1	18.1/20.8	26	23	30	25
EHK-08J		5.6/7.5	1	27.1/31.3	40	34	40	35
EHK-10J		7.5/10	1	36.1/41.7	53	46	60	50
EHK-15J		11.3/15	2	54.2/62.5	79	68	80	70
EHK-20J		15/20	2	72.2/83.3	105	91	110	100
EHK-05J	60 (208/230 V~60Hz)	3.8/5	1	18.1/20.8	26	23	30	25
EHK-08J		5.6/7.5	1	27.1/31.3	40	34	40	35
EHK-10J		7.5/10	1	36.1/41.7	53	46	60	50
EHK-15J		11.3/15	2	54.2/62.5	79	68	80	70
EHK-20J		15/20	2	72.2/83.3	105	91	110	100

1. Minimum Circuit Ampacity.

2. Maximum Over Current Protection per Standard UL 60335.

3. Fuse or HACR circuit breaker size installed at factory or field installed

6 Airflow Data

Duct Application

Model Number	Motor Speed		External Static Pressure-Inches W.C. [kPa]								
			0[0]	0.1[.02]	0.2[.05]	0.3[.07]	0.4[.10]	0.5[.12]	0.6[.15]	0.7[.17]	0.8[.20]
24	Low	CFM	891	829	769	704	630	571	506	441	376
		Current2/A	0.98	1	1	0.95	0.94	0.92	0.92	0.91	0.89
		Power2/W	226	223	221	218	216	213	211	208	206
	Middle-Factory	SCFM	1199	1104	1009	900	828	750	610	535	440
		CFM	1.4	1.39	1.37	1.37	1.35	1.34	1.33	1.29	1.27
		Current2/A	324	320	316	312	308	304	300	296	292
	High	Power2/W	1398	1299	1200	1101	1002	897	810	711	600
		CFM	1.87	1.86	1.84	1.81	1.78	1.76	1.73	1.70	1.67
		Current2/A	429	421	413	405	398	389	383	373	366
36	Tap 1	CFM	784	722	662	578	485	434	365	288	217
		Current/A	0.9	0.9	0.9	1	1	1.1	1.1	1.2	1.2
		Power/W	101	105	110	115	119	127	130	136	141
	Tap 2	CFM	1030	983	935	890	840	758	713	664	613
		Current/A	1.89	1.93	1.96	2.01	2.05	2.11	2.15	2.19	2.23
		Power/W	199	204	209	215	221	230	235	241	246
	Tap 3	CFM	1150	1108	1064	1023	982	942	864	812	771
		Current/A	2.40	2.44	2.48	2.53	2.58	2.62	2.71	2.76	2.80
		Power/W	269	275	280	287	293	299	311	318	323
	Tap 4	CFM	1310	1271	1233	1195	1159	1122	1085	1045	966
		Current/A	3.26	3.31	3.36	3.41	3.46	3.51	3.56	3.62	3.72
		Power/W	387	393	400	406	414	421	428	436	450
	Tap 5	CFM	1350	1330	1291	1254	1217	1183	1148	1114	1078
		Current/A	3.65	3.69	3.74	3.79	3.84	3.89	3.95	4.00	4.06
		Power/W	439	446	452	459	466	473	481	489	498

TPHM Series Rooftop Package

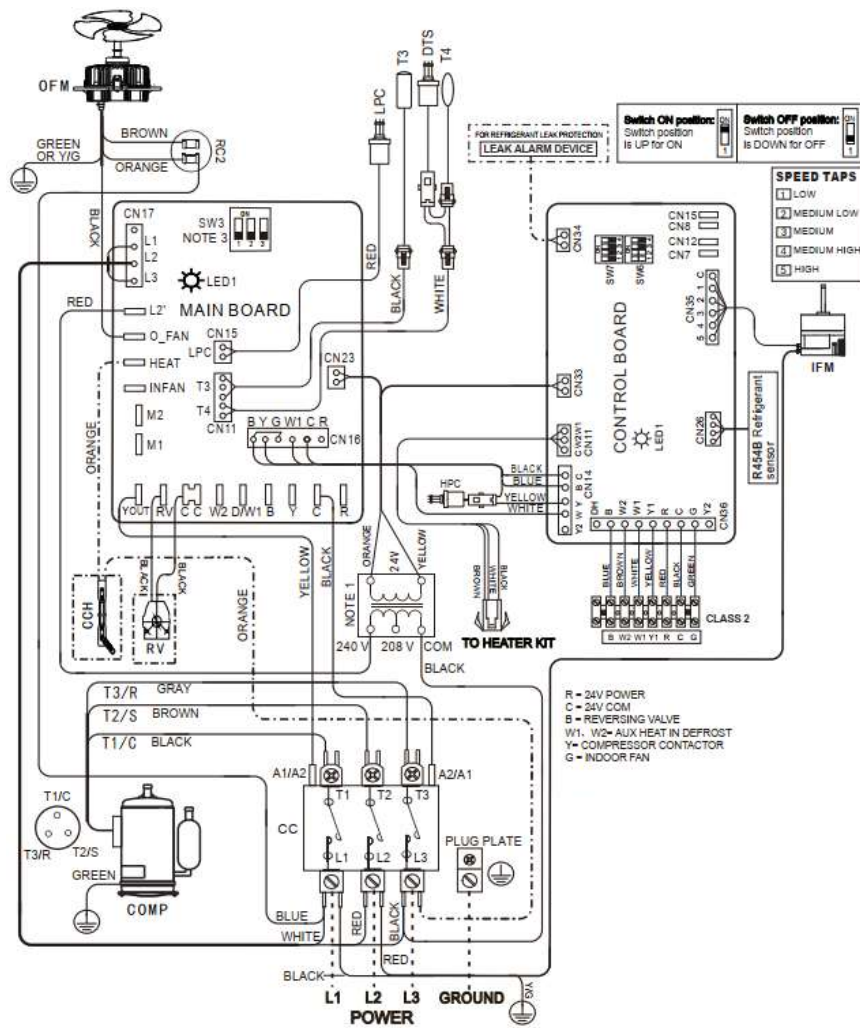
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Model Number	Motor Speed		External Static Pressure-Inches W.C. [kPa]								
			0[0]	0.1[.02]	0.2[.05]	0.3[.07]	0.4[.10]	0.5[.12]	0.6[.15]	0.7[.17]	0.8[.20]
48	Low - Factory	CFM	1506	1432	1357	1267	1200	1118	1039	960	882
		Current/A	2.18	2.16	2.14	2.11	2.08	2.06	2.03	2.00	1.97
		Power/W	452	444	434	422	410	399	388	376	365
	Middle	CFM	1592	1502	1412	1337	1261	1200	1108	1029	951
		Current/A	2.65	2.63	2.6	2.57	2.54	2.51	2.48	2.45	2.43
		Power/W	529	519.5	510	498	486	471	462	451	439
	High	CFM	1670	1592	1513	1422	1331	1222	1200	1088	1005
		Current/A	3.31	3.28	3.25	3.22	3.19	3.15	3.1	3.08	3.04
		Power/W	642	630.5	619	606	594	579	563	553	540
60 (208/230V~60Hz)	Tap 1	CFM	1168	1118	1065	1012	954	897	845	793	752
		Current/A	1.92	1.97	2.03	2.09	2.14	2.20	2.25	2.29	2.33
		Power/W	206	213	221	229	237	245	252	257	263
	Tap 2	CFM	1246	1199	1149	1099	1047	992	941	891	845
		Current/A	2.18	2.24	2.29	2.35	2.42	2.48	2.54	2.59	2.63
		Power/W	242	250	258	267	276	285	293	299	306
	Tap 3	CFM	1418	1376	1332	1285	1239	1194	1144	1095	1050
		Current/A	2.90	2.96	3.02	3.09	3.15	3.22	3.29	3.36	3.42
		Power/W	343	352	360	369	379	388	398	408	416
	Tap 4	CFM	1701	1665	1629	1592	1555	1519	1481	1446	1405
		Current/A	4.58	4.65	4.72	4.80	4.88	4.96	5.04	5.13	5.20
		Power/W	582	593	603	615	626	638	650	663	673
	Tap 5	CFM	1774	1740	1706	1670	1635	1595	1552	1508	1461
		Current/A	5.13	5.21	5.28	5.36	5.44	5.50	5.54	5.58	5.62
		Power/W	663	674	685	696	708	717	724	729	735

The rated airflow of system (high stage setting) requires more than 300 CFM/Ton

TPHM Series Rooftop Package

60(3ph)



CC	COMPRESSOR CONTACTOR
CCH	CRANKCASE HEATER
COMP	COMPRESSOR
DFC	DEFROST CONTROL
T4	AMBIENT TEMPERATURE SENSOR
T3	PIPE TEMPERATURE SENSOR
HPC	HIGH PRESSURE CUT-OUT CONTROL
LPC	LOW PRESSURE CUT-OUT CONTROL
DTS	DISCHARGE TEMPERATURE SWITCH
OFM	OUTDOOR FAN MOTOR
IFM	INDOOR FAN MOTOR
RC1	COMPRESSOR RUN CAPACITOR
RC2	OUTDOOR FAN MOTOR RUN CAPACITOR
RV	REVERSING VALVE
GND	GROUND CHASSIS

FACTORY STANDARD	_____
FIELD INSTALLED	-----
FACTORY OPTIONAL	-----

WARNING
CABINET MUST BE PERMANENTLY GROUNDED AND ALL WIRING TO CONFORM TO I.E.C.N.E.C, C.L.C. AND LOCAL CODES AS APPLICABLE. REPLACEMENT WIRE MUST BE THE SAME GAUGE AND INSULATION TYPE AS ORIGINAL WIRE. USE COPPER CONDUCTORS ONLY.

CONTROL BOARD LED (GREEN) CODE	
STEADY ON	NORMAL OPERATION
OFF	POWER SUPPLY FAULT
KEEP FLASHING	REFRIGERANT LEAK PROTECTION
3 FLASH/CYCLE	R454B REFRIGERANT SENSOR FAULT
4 FLASH/CYCLE	R454B REFRIGERANT SENSOR COMMUNICATION FAULT
8 FLASH/CYCLE	R454B REFRIGERANT SENSOR OVER SERVICE LIFE

MAIN BOARD LED (RED) CODE	
STEADY ON	NORMAL OPERATION
OFF	DEFROST CONTROL
1 FLASH	T3 SENSOR FAULT
2 FLASH	T4 SENSOR FAULT OR DTS PROTECTION
3 FLASH	LPC PROTECTION
4 FLASH	POWER PHASE FAULT
5 FLASH	CONDENSOR COIL TEMPERATURE PROTECTION IN COOLING(T3)
6 FLASH	AMBIENT TEMPERATURE LIMITED(T4)

NOTICE1

1. Connect R to R, G to G, Y to Y, etc. See outdoor instruction for details.
2. If some signal lines of CN36 are not used, please wrap them up separately with CAP.

CAUTION

1. Use copper wires (75 °C min) only between disconnect switch and unit.
2. To be wired in accordance with NEC and local codes.
3. If any of the original wires, as supplied, must be replaced. Use the same or equivalent type wires.
4. If the input voltage is 208 V, please change the transformer tap by taking the red wire to 208V terminal.
5. The rated operating condition of Alarm is 24 VAC/1A or 30 VDC/1A or 250 VAC/1A. Please refer to the manual for wiring methods.

* FACTORY DEFAULT

SW3-1	ON	MANUAL DEFROST
	OFF	AUTOMATIC DEFROST *
SW3-2	ON	SINGLE-PHASE UNIT
	OFF	THREE-PHASE UNIT *
SW3-3	ON	DEFROSTING CYCLE:30 min
	OFF	DEFROSTING CYCLE:60 min *

The wiring diagram shown is for reference only, it maybe different from the actual product .

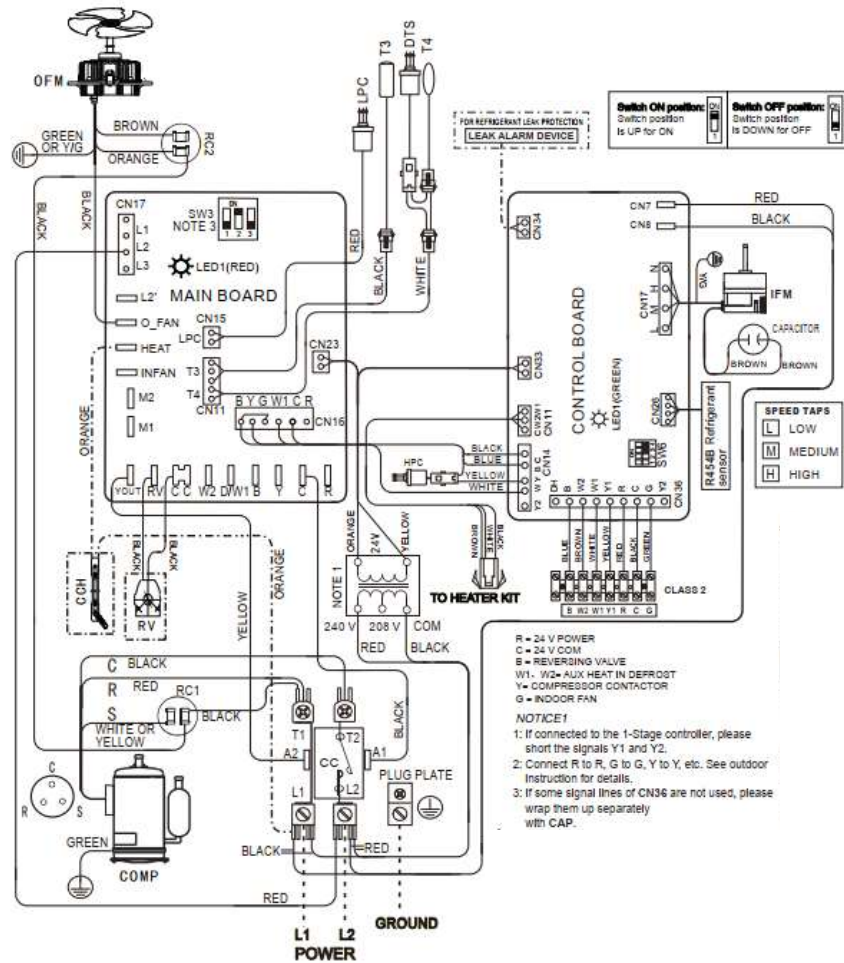
NOTICE2

1. Remove the red lead from "240 V" terminal and then connect the red lead to "208 V" terminal on the transformer for 208 volts.
2. "W2" wire is not provided in some models.
3. "SW3" is only for hot pump system.
4. "RV" is only for hot pump system, "RV" is not provided in some models.

OPTIONAL	-----	FIELD INSTALLED	-----
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DETAILED REFERENCE MANUAL INSTRUCTIONS

DIP SWITCH	Y1 OR G	W/W1/W2
SW6-1,2 FAN SPEED TAPS	2	3
	3	4
	4	5
	5	5
60 kBtu/h		
NOT USED		
SW6-3,4	3,4	FACTORY DEFAULT
SW7-1,2 SW7-3,4	1,2,3,4	FACTORY DEFAULT



CC	COMPRESSOR CONTACTOR
CCH	CRANKCASE HEATER
COMP	COMPRESSOR
DFC	DEFROST CONTROL
T4	AMBIENT TEMPERATURE SENSOR
T3	PIPE TEMPERATURE SENSOR
HPC	HIGH PRESSURE CUT-OUT CONTROL
LPC	LOW PRESSURE CUT-OUT CONTROL
DT5	DISCHARGE TEMPERATURE SWITCH
OFM	OUTDOOR FAN MOTOR
IFM	INDOOR FAN MOTOR
RC1	COMPRESSOR RUN CAPACITOR
RC2	OUTDOOR FAN MOTOR RUN CAPACITOR
RV	REVERSING VALVE
GND	GROUND CHASSIS

FACTORY STANDARD _____
FIELD INSTALLED - - - - -
FACTORY OPTIONAL - . - . - . - . - .

⚠ WARNING
CABINET MUST BE PERMANENTLY GROUNDED
AND ALL WIRING TO CONFORM TO I.E.C., N.E.C.,
C.I.C. AND LOCAL CODES AS APPLICABLE
REPLACEMENT WIRE MUST BE THE SAME
GAUGE AND INSULATION TYPE AS ORIGINAL
WIRE.
USE COPPER CONDUCTORS ONLY.

* FACTORY DEFAULT

SW3-1	ON	MANUAL DEFROST	
	OFF	AUTOMATIC DEFROST	*
SW3-2	ON	SINGLE-PHASE UNIT	*
	OFF	THREE-PHASE UNIT	
SW3-3	ON	DEFROSTING CYCLE:30 min	
	OFF	DEFROSTING CYCLE:60 min	*

The wiring diagram shown is for reference only, it maybe different from the actual product.

NOTICE2

- 1: Remove the red lead from "240 V" terminal and then connect the red lead to "208 V" terminal on the transformer for 208 volts.
- 2: "W2" wire is not provided in some models.
- 3: "SW3" is only for hot pump system.
- 4: "RV" is only for hot pump system; "RV" is not provided in some models.

OPTIONAL - - - -	FIELD INSTALLED - - - - -
1	1
2	2
3	3
4	4
5	5
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10	10
11	11
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90	90
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92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

CONTROL BOARD LED (GREEN) CODE		
	STEADY ON	NORMAL OPERATION
	OFF	POWER SUPPLY FAULT
	KEEP FLASHING	REFRIGERANT LEAK PROTECTION
	3 FLASH/CYCLE	R454B REFRIGERANT SENSOR FAULT
	4 FLASH/CYCLE	R454B REFRIGERANT SENSOR COMBINATION FAULT
	8 FLASH/CYCLE	R454B REFRIGERANT SENSOR OVER SERVICE LIFE

MAIN BOARD LED(RED) CODE		
	STEADY ON	NORMAL OPERATION
	OFF	DEFROST CONTROL
	1 FLASH	T3 SENSOR FAULT
	2 FLASH	T4 SENSOR FAULT OR DTS PROTECTION
	3 FLASH	LPC PROTECTION
	4 FLASH	POWER PHASE FAULT
	5 FLASH	CONDENSOR COIL TEMPERATURE PROTECTION IN COOLING(T3)
	6 FLASH	AMBIENT TEMPERATURE LIMITED(T4)

DETAILED REFERENCE
MANUAL INSTRUCTIONS

	DIP SWITCH	G	W/W1/W
SW6-1,2 FAN SPEED TAPS	 48 kBtu/h	L	H
	 48 kBtu/h	L	H
	 24 kBtu/h	M	H
	 24 kBtu/h	H	H
SW6-3		0 S OFF-DELAY	
		90 S OFF-DELAY (FACTORY DEFAULT)	
NOT USED			
SW6-4		FACTORY DEFAULT	

 CAUTION

1. Use copper wires (75 °C min) only between disconnect switch and unit.
2. In accordance with NEC and local codes.
3. If any of the original wires, as supplied, must be replaced. Use the same or equivalent type wires.
4. If the input voltage is 208 V, please change the transformer tap by taking the red wire to 208V terminal.
5. The rated operating condition of **Alarm** is 24 VAC/1A or 30 VDC/1A or 250 VAC/1A. Please refer to the manual for wiring methods.

