YORK®
Heating and Air Conditioning

TECHNICAL GUIDE

AFFINITY

MODELS: PV9

GAS-FIRED
CONDENSING / HIGH EFFICIENCY
DOWNFLOW/HORIZONTAL
TWO STAGE VARIABLE SPEED FURNACES

NATURAL GAS
60 - 120 MBH INPUT

ISO 9001
Certified Quality
Management System

Due to continuous product improvement, specifications are subject to change without notice.

Visit us on the web at www.york.com for the most up-to-date technical information.

Additional rating information can be found at www.gamanet.org.

DESCRIPTION

These Category IV, highly efficient, compact, condensing type furnaces are designed for residential and commercial installations in a basement, closet, alcove, recreation room or garage where the ambient temperature is above 32°F, or higher. They may be either side wall or thru-roof vented using approved plastic type combustion air and vent piping. All units are factory assembled, wired and tested to assure dependable and economical installation and operation.

WARRANTY

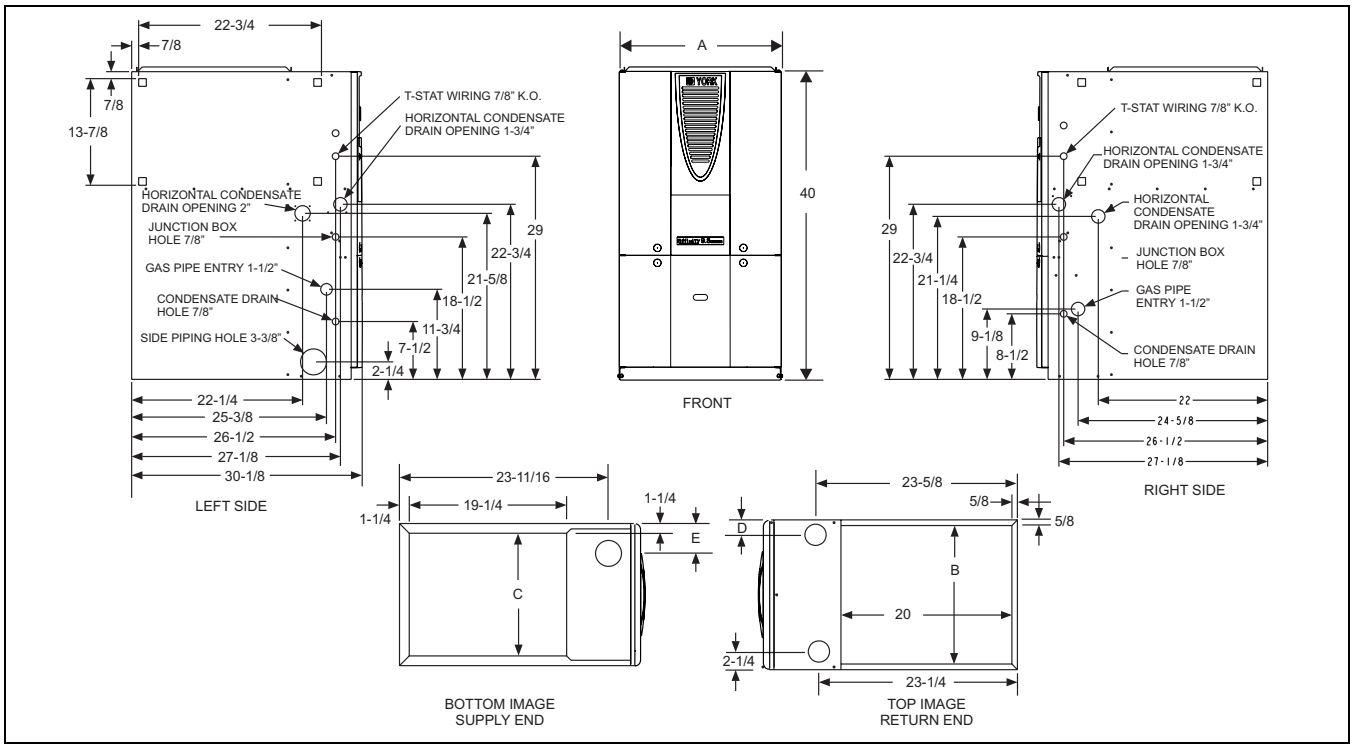
Lifetime limited warranty on both heat exchangers to the original purchaser; a 20-year limited warranty from original installation date to subsequent purchaser.

10-year warranty on the heat exchanger in commercial applications.

5-year limited parts warranty.

FEATURES

- Two stage heating operation includes:
  - Two stage gas valve
  - Two stage inducer operation
- Provides increased comfort level & very quiet unit operation
- Adjustable delay timer allows two stage operation with single stage thermostat
- Compact, easy to install, ideal height 40" cabinet
- Blower-off delay for cooling SEER improvement.
- Easy to connect power/control wiring.
- Built-in, high level self diagnostics with fault code display.
- Low unit amp requirement for easy replacement application.
- Integrated control module for reliable, economical operation.
- May be installed as either two-pipe (sealed combustion) or single pipe vent (using indoor combustion air)
- Top intake & vent connection allows installation in narrow locations.
- Electronic Hot Surface Ignition saves fuel cost with increased dependability and reliability.
- Induced combustion system with inshot main burners for quiet, efficient operation.
- No special vent termination kit required.
- 100% shut off main gas valve for extra safety.
- 24V, 40 VA control transformer and blower relay supplied for add-on cooling.
- Hi-tech tubular aluminized steel primary heat exchanger.
- Secondary (condensing) heat exchanger of 29-4C high-grade stainless steel.
- Timed on, adjustable off blower capability for maximum comfort.
- Independent door removal for greater durabilty and ease of access.
- Easy access from front of unit for cleaning, maintenance or service.
- Protection from intake, exhaust or condensate blockage.
- Insulated blower compartment for quiet operation.
- 3-way transition facilitates fresh air piping.
- ClimaTraK comfort system allows dealer to customize comfort settings based on regional location.



DIMENSIONS

Models	Nominal CFM	Cabinet Size	Cabinet Dimension				
			A (in.)	B (in.)	C (in.)	D (in.)	E (IN.)
PV9B12N060DH11	1200	B	17-1/2	16-1/4	15	1-3/4	2-3/8
PV9B12N080DH11	1200	B	17-1/2	16-1/4	15	1-3/4	2-3/8
PV9C16N080DH11	1600	C	21	19-3/4	18-1/2	2-1/8	2-3/4
PV9C20N100DH11	2000	C	21	19-3/4	18-1/2	2-1/8	2-3/4
PV9D20N120DH11	2000	D	24-1/2	23-1/4	22	2-1/2	3

ELECTRICAL AND PERFORMANCE DATA

Models	Input (High/Low)	Output (High/Low)	Nominal Airflow	Cabinet Width	Total Unit	AFUE	Air Temp. Rise
	MBH	MBH	CFM	In.	Amps	%	°F
PV9B12N060DH11	60 / 39	56 / 36	1200	17-1/2	9	92	35 - 65
PV9B12N080DH11	80 / 52	75 / 49	1200	17-1/2	9	92	35 - 65
PV9C16N080DH11	80 / 52	75 / 49	1600	21	12	92	35 - 65
PV9C20N100DH11	100 / 65	93 / 61	2000	21	14	92	35 - 65
PV9D20N120DH11	120 / 78	112 / 74	2000	24-1/2	14	92	35 - 65

Models	Input (High/Low)	Max. Outlet Air Temp.	Blower		Blower Size	Max. Over-current Protect	Min. Wire Size * (awg) @ 75 ft. One Way	Operating Weight
	MBH	°F	HP	Amps	In.			Lbs.
PV9B12N060DH11	60 / 39	165	1/2	7.0	11 x 8	20	14	136
PV9B12N080DH11	80 / 52	165	1/2	7.0	11 x 8	20	14	143
PV9C16N080DH11	80 / 52	165	3/4	10.2	11 x 10	20	14	159
PV9C20N100DH11	100 / 65	165	1	12.7	11 x 11	20	12	164
PV9D20N120DH11	120 / 78	165	1	12.7	11 x 11	20	12	182

Annual Fuel Utilization Efficiency (AFUE) numbers are determined in accordance with DOE Test procedures.
Wire size and over current protection must comply with the National Electrical Code (NFPA-70-latest edition) and all local codes.
The furnace shall be installed so that the electrical components are protected from water.
* Wire size and overcurrent protection must comply with the National Electric Code.

NOTES:
1. For altitudes above 2000 ft. reduce capacity 4% for each 1000 ft. above sea level.
2. Wire size based on copper conductors, 60°C, 3% voltage drop.
3. Continuous return air temperature must not be below 55°F.
4. All filters must be high velocity cleanable type.

AIR FLOW DATA

HIGH / LOW SPEED COOLING AND HEAT PUMP CFM - WITHOUT FILTERS					
PV9B12N060DH11		PV9B12N080DH11		Jumper Settings	
High	Low	High	Low	COOL Tap	ADJ Tap
1329	898	1312	878	A	B
1133	774	1117	741	B	B
1226	842	1202	810	A	A
1039	708	996	683	B	A
1110	755	1084	725	A	C
915	637	892	618	C	B
930	646	898	619	B	C
719	529	700	511	D	B
856	603	827	580	C	A
657	526	642	500	D	A
762	566	746	532	C	C
612	523	596	500	D	C
PV9C16N080DH11		PV9C20N100DH11		Jumper Settings	
High	Low	High	Low	COOL Tap	ADJ Tap*
1758	1183	2196	1498	A	B
1646	1106	1858	1167	B	B
1699	1140	2045	1363	A	A
1531	1033	1661	1054	B	A
1527	1047	1884	1201	A	C
1449	969	1597	1022	C	B
1368	930	1506	947	B	C
1213	832	1395	891	D	B
1309	897	1477	922	C	A
1116	762	1254	761	D	A
1170	808	1304	801	C	C
1031	703	1114	657	D	C
PV9D20N120DH11				Jumper Settings	
High	Low			COOL Tap	ADJ Tap*
2342	1528			A	B
1904	1229			B	B
2140	1404			A	A
1700	1096			B	A
1918	1247			A	C
1643	1044			C	B
1522	967			B	C
1418	852			D	B
1494	945			C	A
1287	772			D	A
1337	802			C	C
1132	668			D	C
HIGH / LOW HEAT CFM - WITHOUT FILTERS					
PV9B12N060DH11		PV9B12N080DH11		Jumper Settings	
High	Low	High	Low	HEAT Tap	ADJ Tap*
1137	720	1386	962	A	Any
974	625	1322	892	B	Any
883	593	1250	849	C	Any
825	561	1159	768	D	Any
PV9C16N080DH11		PV9C20N100DH11		Jumper Settings	
High	Low	High	Low	HEAT Tap	ADJ Tap*
1732	1173	1912	1237	A	Any
1631	1110	1688	1079	B	Any
1493	1008	1545	967	C	Any
1359	931	1422	899	D	Any
PV9D20N120DH11				Jumper Settings	
High	Low			HEAT Tap	ADJ Tap*
2238	1465			A	Any
2014	1313			B	Any
1863	1211			C	Any
1686	1075			D	Any

All CFM's are shown at 0.5" w.c. external static pressure.These units have variable speed motors that automatically adjust to provide constant CFM from 0.0" to 0.6" w.c. static pressure. From 0.6" to 1.0" static pressure, CFM is reduced by 2% per 0.1" increase in static. Operation on duct systems with greater than 1.0" w.c. external static pressure is not recommended.

NOTE: At some settings, LOW COOL and/or LOW HEAT airflow may be lower that what is required to operate an airflow switch on certain models of electronic air cleaners. Consult the instructions for the electronic air cleaner for further details.

* The ADJ "D" tap should not be used.

FILTER PERFORMANCE

The airflow capacity data published in the “Blower Performance” table listed above represents blower performance WITHOUT filters. To determine the approximate blower performance of the system, apply the filter drop value for the filter being used or select an appropriate value from the “Filter Performance” table shown.

NOTE: The filter pressure drop values in the “Filter Performance” table shown are typical values for the type of filter listed and should only be used as a guideline. Actual pressure drop ratings for each filter type vary between filter manufacturer.

FILTER SIZES

Input / Output BTU/H	CFM	Cabinet Size	Top Return Filter in
60/56	1200	B	(2) 14 x 20
80/75	1200	B	(2) 14 x 20
80/75	1600	C	(2) 14 x 20
100/95	2000	C	(2) 14 x 20
120/112	2000	D	(2) 14 x 20

APPLYING FILTER PRESSURE DROP TO DETERMINE SYSTEM AIRFLOW

To determine the approximate airflow of the unit with a filter in place, follow the steps below:

1. Select the filter type.
2. Determine the External System Static Pressure (ESP) without the filter.
3. Select a filter pressure drop from the table based upon the number of return air openings or return air opening size and add to the ESP from Step 2 to determine the total system static.

If total system static matches a ESP value in the airflow table (i.e. 0.20, 0.60, etc,) the system airflow corresponds to the intersection of the ESP column and Model/Blower Speed row.

FILTER PERFORMANCE - PRESSURE DROP INCHES W.C.

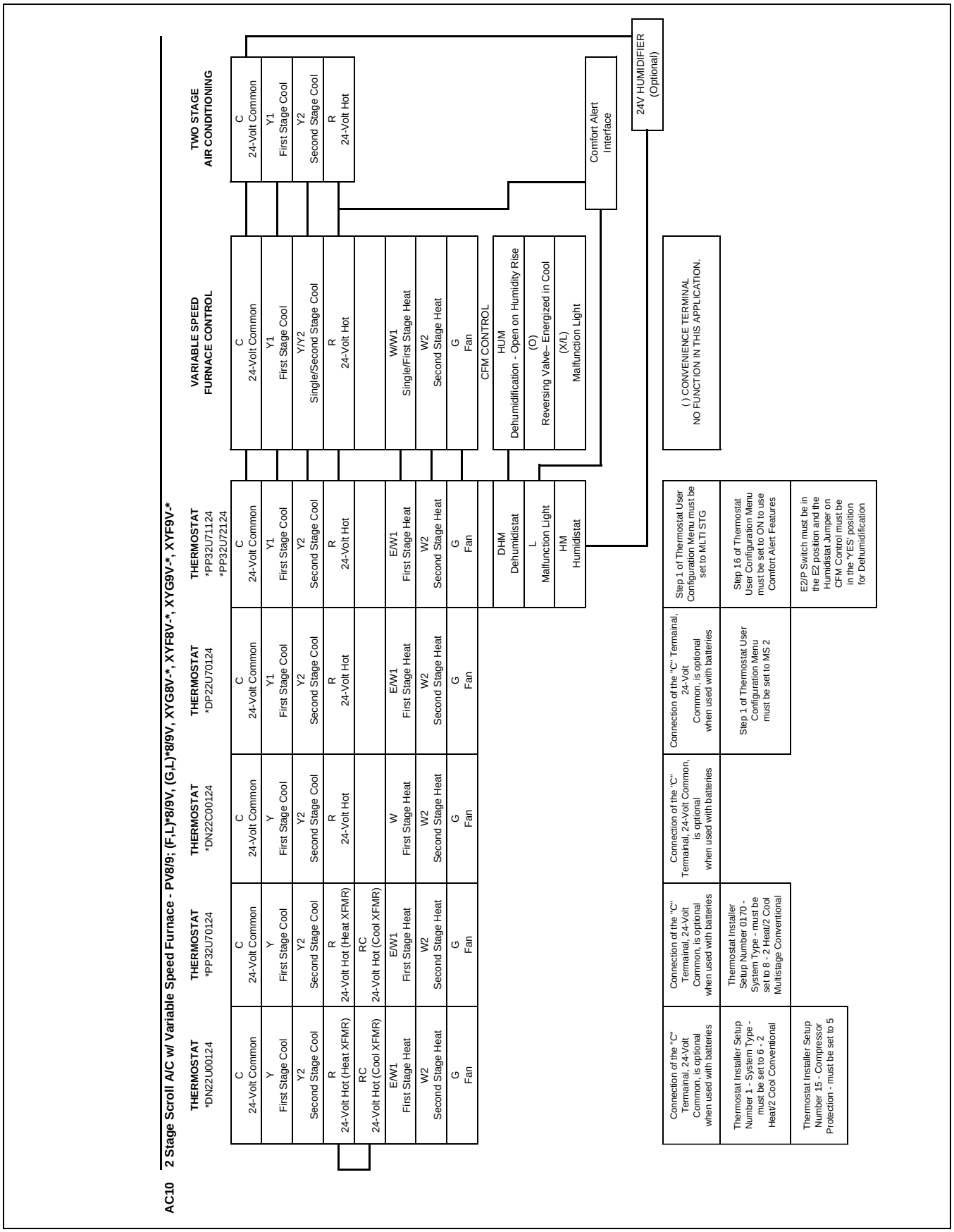
Airflow Range	Minimum Opening Size	Filter Type		
		Disposable	Washable Fibers	Pleated
CFM	in^2	In W.C.	In W.C.	In W.C.
0 - 750	230	0.01	0.01	0.15
751 - 1000	330	0.05	0.05	0.20
1001 - 1250	330	0.10	0.10	0.20
1251 - 1500	330	0.10	0.10	0.25
1501 - 1750	380	0.15	0.14	0.30
1751 - 2000	380	0.19	0.18	0.30
2001 & Above	463	0.19	0.18	0.30

UNIT CLEARANCES TO COMBUSTIBLES

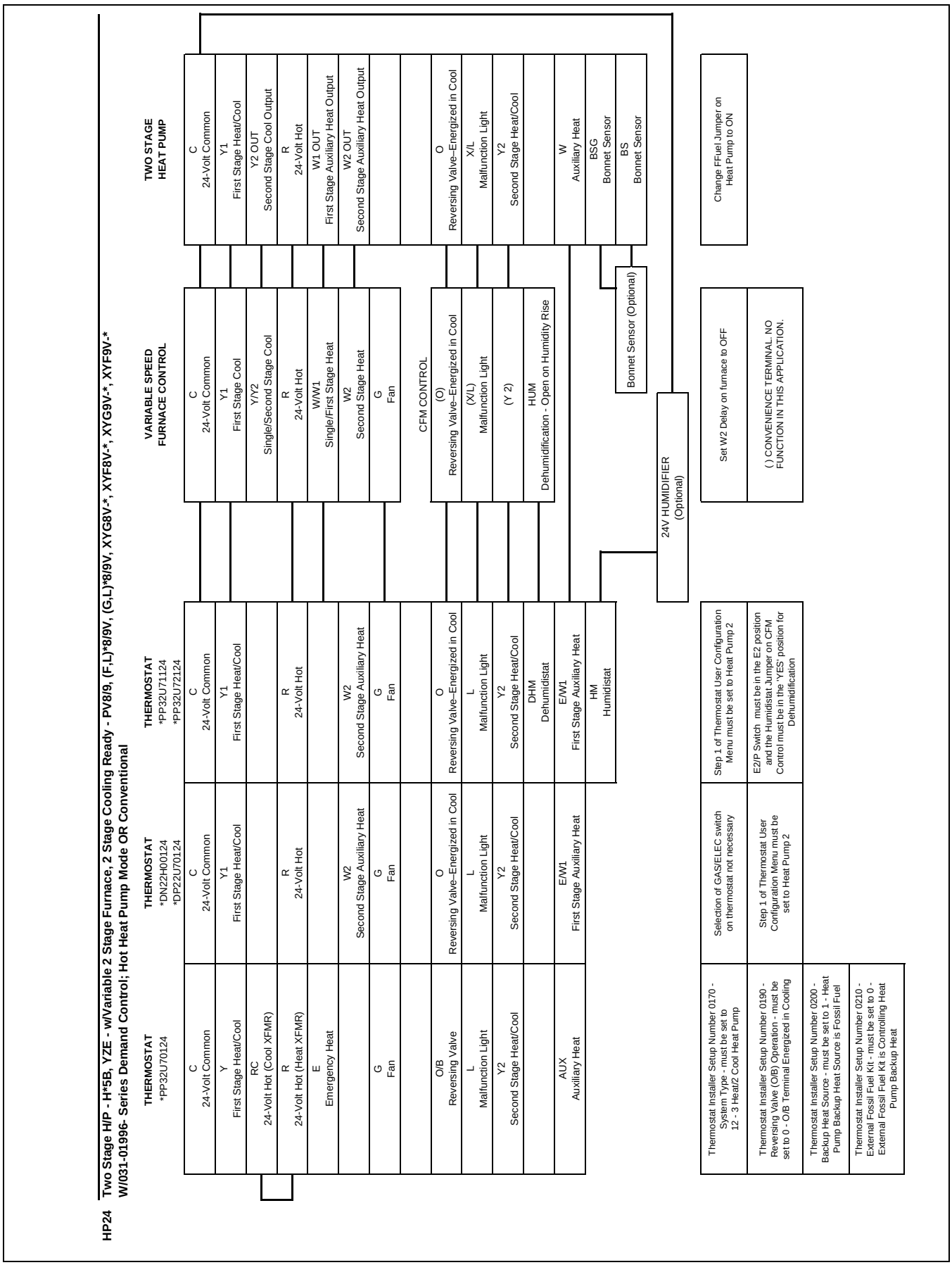
Application	Top	Front	Rear	Left Side	Right Side	Flue	Floor/Bottom	Closet	Alcove	Attic	Line Contact
	In.	In.	In.	In.	In.	In.	In.				
Downflow	1	3	0	0	0	0	1*	Yes	Yes	Yes	NA
Horizontal	0	3	0	1	1	0	0	Yes	Yes	Yes	Yes†

* Combustible floor base or air conditioning coil required for use on combustible floor.

For additional connection diagrams for all UPG equipment refer to “Low Voltage System Wiring” document available online at www.upgnet.com in the Product Catalog Section.



Thermostat Chart - AC



Thermostat Chart - HP

ACCESSORIES

PROPANE (LP) CONVERSION KIT -

1NP0347 - All units

This accessory conversion kit may be used to convert natural gas (N) units for propane (LP) operation. Conversions must be made by qualified distributor or dealer personnel.

CONCENTRIC VENT TERMINATION -

1CT0302 (2")

1CT0303 (3")

For use through rooftop, sidewall. Allows combustion air to enter and exhaust to exit through single common hole. Eliminates unslightly elbows for a cleaner installation.

SIDEWALL VENT TERMINATION KIT -

1HT0901 (3")
1HT0902 (2")

For use on sidewall, two-pipe installations only. Provide a more attractive termination for locations where the terminal is visable on the side of the home.

COMBUSTIBLE FLOOR BASE -

1CB0317 - 17 1/2” Cabinet
1CB0321 - 21” Cabinet
1CB0324 - 24-1/2” Cabinet

COIL TRANSITION KIT -

1TK0917 - 17-1/2” Furnace

1TK0921 - 21” Furnace

1TK0924 - 24-1/2” Furnace

These kits are required in downflow application when using G*F* series coils. These kits are not required with MC/FC series coils, but please ensure that the coil and furnace are secured and that there are no air leaks.

CONDENSATE NEUTRALIZER KIT - 1NK0301
Neutralizer cartidge has a 1/2" plastic tube fittings for installation in the drain line. Calcium carbonate refill media is also avaiable from the Source 1 Parts (p/n 026-30228-000).

HIGH ALTITUDE PRESSURE SWITCHES -

For installation where the altitude is less than 8,000 feet it is not required that the pressure switch be changed. For altitudes above 8,000 feet see kits below. Conversion must be made by qualified distributor or dealer personnel.

1PS0507 - 060 MBH
1PS0508 - 080/1200 MBH
1PS0509 - 080/1600 MBH
1PS0510 - 100 MBH
1PS0511 - 120 MBH

ROOM THERMOSTATS - A wide selection of compatible thermosets are available to provide optimum performance and features for any installation.

1H/1C, manual change-over electronic non-programmable thermostat.

1H/1C, auto/manual changeover, electronic programmable, deluxe 7-day, thermostat.

1H/1C, auto/manual changeover, electronic programmable.

* For the most current accessory information, refer to the price book or consult factory.

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