YORK®
Heating and Air Conditioning

TECHNICAL GUIDE

AFFINITY

MODELS: PV8*DH

GAS-FIRED
HIGH EFFICIENCY VARIABLE SPEED
DOWNFLOW/HORIZONTAL FURNACES
STANDARD & Low NOx

NATURAL GAS
57 - 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 high efficiency, compact units employ induced combustion, reliable hot surface ignition and high heat transfer tubular heat exchangers. The units are factory shipped for installation in downflow or horizontal applications.

These furnaces are designed for residential installation in a basement, closet, alcove, attic, recreation room or garage and are also ideal for commercial applications. All units are factory assembled, wired and tested to assure safe dependable and economical installation and operation.

These units are Category I listed and may be common vented with another gas appliance as allowed by the National Fuel Gas Code ANSI Z223.1 (latest edition).

WARRANTY

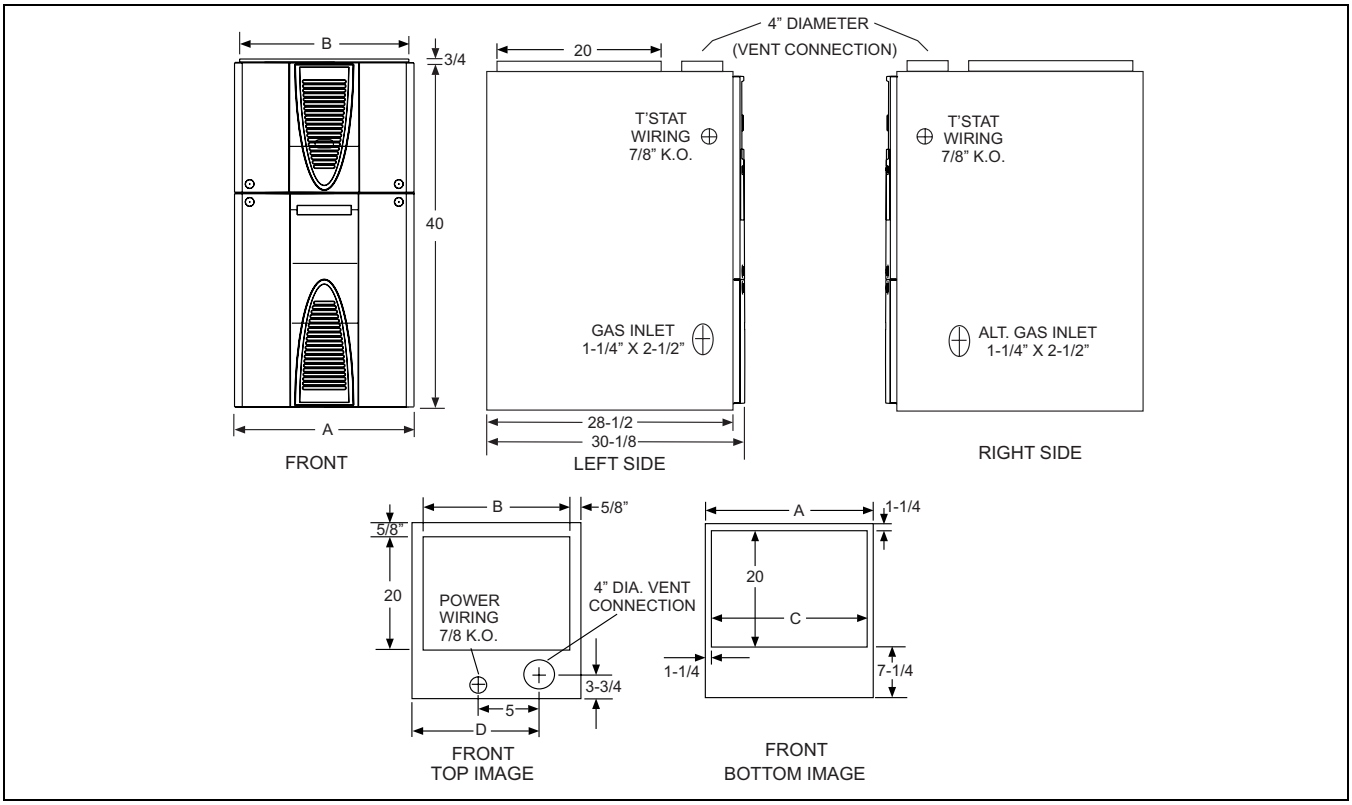
20-year limited warranty on the heat exchanger.

10-year heat exchanger warranty on commercial applications.

5-year limited parts warranty.

FEATURES

- Two stage heating operation includes:
  - Two stage gas valve
  - Two stage inducer operation
  - Two speed blower operation
- Provides increased comfort level & very quiet unit operation.
- Field selectable delay timer allows two stage operation w/ single stage thermostat.
- Acoustically insulated blower compartment for reduced blower sound level.
- 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.
- Electronic Hot Surface Ignition saves fuel cost with increased dependability and reliability.
- Induced combustion system with inshot main burners for quiet, efficient operation.
- 100% shut off main gas valve for extra safety.
- Variable Speed ECM with large, quiet blower.
- ClimaTrakVariable speed airflow profiles with ECM control allows dealer to customize comfort settings based on regional location.
- 24V, 40 VA control transformer and blower relay supplied for add-on cooling.
- Hi-tech tubular aluminized steel primary heat exchanger.
- Timed on, adjustable off blower capability for maximum comfort
- Easy access from front of unit for cleaning, maintenance, or service.
- Independent door removal for greater durability and ease of access.
- Low NOx models have been designed to meet specific code requirements.
- Low NOx models may not be converted to propane unless screens are removed.



CABINET AND DUCT DIMENSIONS

MODEL	Airflow CFM	Cabinet Size	CABINET DIMENSION			
			A(in.)	B(in.)	C(in.)	D(in.)
PV8A12(N,L)060DH11	1200	A	14 1/2	13 1/4	12	10 3/8
PV8B16(N,L)080DH11	1600	B	17 1/2	16 1/4	15	11 3/4
PV8C16(N,L)080DH11	1600	C	21	19 3/4	18 1/2	13 1/2
PV8C16(N,L)100DH11	1600	C	21	19 3/4	18 1/2	13 1/2
PV8C20(N,L)100DH11	2000	C	21	19 3/4	18 1/2	13 1/2
PV8C20(N,L)120DH11	2000	C	21	19 3/4	18 1/2	13 1/2

RATINGS & PHYSICAL / ELECTRICAL DATA

MODEL	Input High/Low	Output High/Low	Nominal Airflow	Cabinet Width	Total Unit Amps	AFUE	Air Temp. Rise
	MBH	MBH	CFM	In.			°F
PV8A12(N,L)060DH11	57/42	46/34	1200	14-1/2	9.0	80.0	20-50
PV8B16(N,L)080DH11	80/59	64/48	1600	17 1/2	12.0	80.0	20-50
PV8C16(N,L)080DH11	80/59	64/48	1600	21	12.0	80.0	25-55
PV8C16(N,L)100DH11	100/65	80/53	1600	21	12.0	80.0	25-55
PV8C20(N,L)100DH11	100/65	80/53	2000	21	14.0	80.0	25-55
PV8C20(N,L)120DH11	120/78	96/64	2000	21	14.0	80.0	25-55

MODEL	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.
PV8A12(N,L)060DH11	57/42	160	1/2	7.7	10 x 8	20	14	110
PV8B16(N,L)080DH11	80/59	160	3/4	9.6	11 x 8	20	14	130
PV8C16(N,L)100DH11	80/59	160	3/4	9.6	10 x 10	20	14	140
PV8C16(N,L)100DH11	100/65	160	3/4	9.6	11 x 10	20	14	125
PV8C20(N,L)100DH11	100/65	160	1.0	12.8	11 x 11	20	12	150
PV8C20(N,L)120DH11	120/78	160	1.0	12.8	11 x 11	20	12	150

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.
Annual Fuel Utilization Efficiency (AFUE) numbers are determined in accordance with DOE Test procedures.

AIR FLOW DATA

HIGH / LOW SPEED COOLING AND HEAT PUMP CFM					
PV8A12(N,L)060DN11		**PV8B16(N,L)080DN11**		Jumper Settings	
High	Low	High	Low	Cool Tap	ADJ Tap*
1342	872	1650	1073	A	B
1155	751	1540	1001	B	B
1220	793	1500	975	A	A
1050	683	1400	910	B	A
1098	714	1350	878	A	C
913	593	1320	858	C	B
945	614	1260	819	B	C
726	472	1100	715	D	B
830	540	1200	780	C	A
660	429	1000	650	D	A
747	486	1080	702	C	C
594	386	900	585	D	C
PV8C16(N,L)080DN11		**PV8C16(N,L)100DN11**		Jumper Settings	
High	Low	High	Low	Cool Tap	ADJ Tap*
1650	1073	1650	1073	A	B
1540	1001	1540	1001	B	B
1500	975	1500	975	A	A
1400	910	1400	910	B	A
1350	878	1350	878	A	C
1320	858	1320	858	C	B
1260	819	1260	819	B	C
1100	715	1100	715	D	B
1200	780	1200	780	C	A
1000	650	1000	650	D	A
1080	702	1080	702	C	C
900	585	900	585	D	C
PV8C20(N,L)100DN11		**PV8C20(N,L)120DN11**		Jumper Settings	
High	Low	High	Low	Cool Tap	ADJ Tap*
2052	1334	2052	1333	A	B
1760	1144	1760	1144	B	B
1865	1212	1865	1212	A	A
1600	1040	1600	1040	B	A
1679	1091	1679	1091	A	C
1540	1001	1540	1001	C	B
1440	936	1440	936	B	C
1320	858	1320	858	D	B
1400	910	1400	910	C	A
1200	780	1200	780	D	A
1260	819	1260	819	C	C
1080	702	1080	702	D	C
HIGH / LOW HEAT CFM					
PV8A12(N,L)060DN11		**PV8B16(N,L)080DN11**		Jumper Settings	
High	Low	High	Low	Heat Tap	ADJ Tap*
1350	1013	1900	1425	A	Any
1250	938	1750	1313	B	Any
1150	863	1650	1238	C	Any
1050	788	1400	1050	D	Any
PV8C16(N,L)080DN11		**PV8C16(N,L)100DN11**		Jumper Settings	
High	Low	High	Low	Heat Tap	ADJ Tap*
1900	1425	2100	1575	A	Any
1750	1313	2000	1500	B	Any
1650	1238	1800	1350	C	Any
1400	1050	1700	1275	D	Any
PV8C20(N,L)100DN11		**PV8C20(N,L)120DN11**		Jumper Settings	
High	Low	High	Low	Heat Tap	ADJ Tap*
2100	1575	2350	1998	A	Any
2000	1500	2250	1913	B	Any
1800	1350	2000	1700	C	Any
1700	1275	1800	1530	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 than 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.

HORIZONTAL SIDEWALL VENTING

For applications where vertical venting is not possible, the only approved method of horizontal venting is the use of an auxiliary power vent. Approved power venters are Fields Controls Model SWG-4Y or the appropriate Tjernlund GPAK model. Follow all application and installation details provided by the manufacturer of the power vent. This unit may be horizontally vented using 4" (10.2 cm) diameter pipe with a minimum length of 4.5 feet (1.37 m) and a maximum length of 34.5 feet (10.82 m) with up to 4 elbows.

FILTER PERFORMANCE

The airflow capacity data published in Blower Performance Tables 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 Table below.

NOTE: The filter pressure drop values in Blower Performance Tables 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

Cabinet Size	Top Return (in)	Top Return (cm)
A	(2) 14 x 20	(2) 35.6 x 50.8
B	(2) 14 x 20	(2) 35.6 x 50.8
C	(2) 14 x 20	(2) 35.6 x 50.8

* All filters must be high velocity cleanable type.

FILTER PERFORMANCE - PRESSURE DROP INCHES W.C. AND (KPA)

Airflow Range	Minimum Opening Size	Filter Type		
		Disposable	Washable Fiber	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.					
Downflow	1	6	0	0	3	6	1[1]	Yes	Yes	Yes	No
Downflow B-Vent	1	3	0	0	0	1	1[1]	Yes	Yes	Yes	No
Horizontal	1	6	0	0	3	6	Combustible	No	Yes	Yes	Yes[2]
Horizontal B-Vent	1	3	0	0	0	1	Combustible	No	Yes	Yes	Yes[2]

1 Special floor base or air conditioning coil required for use on combustible floor.

2 Line contact only permitted between lines formed by the intersection of the rear panel and side panel (top in horizontal position) of the furnace jacket and building joists, studs or framing.

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. Select the number of return air openings or calculate the return opening size in square inches to determine the proper filter pressure drop.
3. Determine the External System Static Pressure (ESP) without the filter.
4. 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 3 to determine the total system static.
5. If total system static matches an 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.
6. If the total system static falls between ESP values in the table (i.e. 0.58, 0.75, etc.), the static pressure may be rounded to the nearest value in the table determining the airflow using Step 5 or calculate the airflow by using the following example.

Example: For an 80,000 BTUH (23.4 kW) furnace operating on HI COOL TAP B and ADJUST TAP A, it is found that total system static is 0.68” w.c. (170 Pa).

To determine the system airflow, complete the following steps:

Airflow @ 0.60”: 1400 CFM (39.6 m^3/min)

Subtract the total system static from 0.60” w.c. (150 Pa) and divide this by 0.1” w.c. (25 Pa).

0.68 (170 Pa) - 0.60 (150 (Pa) = 0.08 (20 Pa)

0.08 (20 Pa) / 0.1 (25 Pa) = 0.8

Multiply this by 2% to obtain the percentage reduction in airflow.

0.8 x 0.02 = 0.016

Multiply percentage reduction in airflow by the airflow in the table to obtain the airflow reduction.

0.016 x 1400 (39.6 m^3/min) = 22 (0.6 m^3/min)

Subtract airflow reduction value from airflow in the table to obtain actual airflow @ 0.68” w.c. (170 Pa) ESP.

1400 (39.6 m^3/min) - 22 (0.6 m^3/min) = 1378 (39.0 m^3/min).

ACCESSORIES

PROPANE (LP) CONVERSION KIT -

1NP0347 - All Models

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

COMBUSTIBLE FLOOR BASE -

1CB0314 - for 14-1/2” cabinet models

1CB0317 - for 17-1/2” cabinet models

1CB0321 - for 21” cabinet models

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.

1PS0313 - 057, 080, 100 MBH

1PS0314 - 120 MBH

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

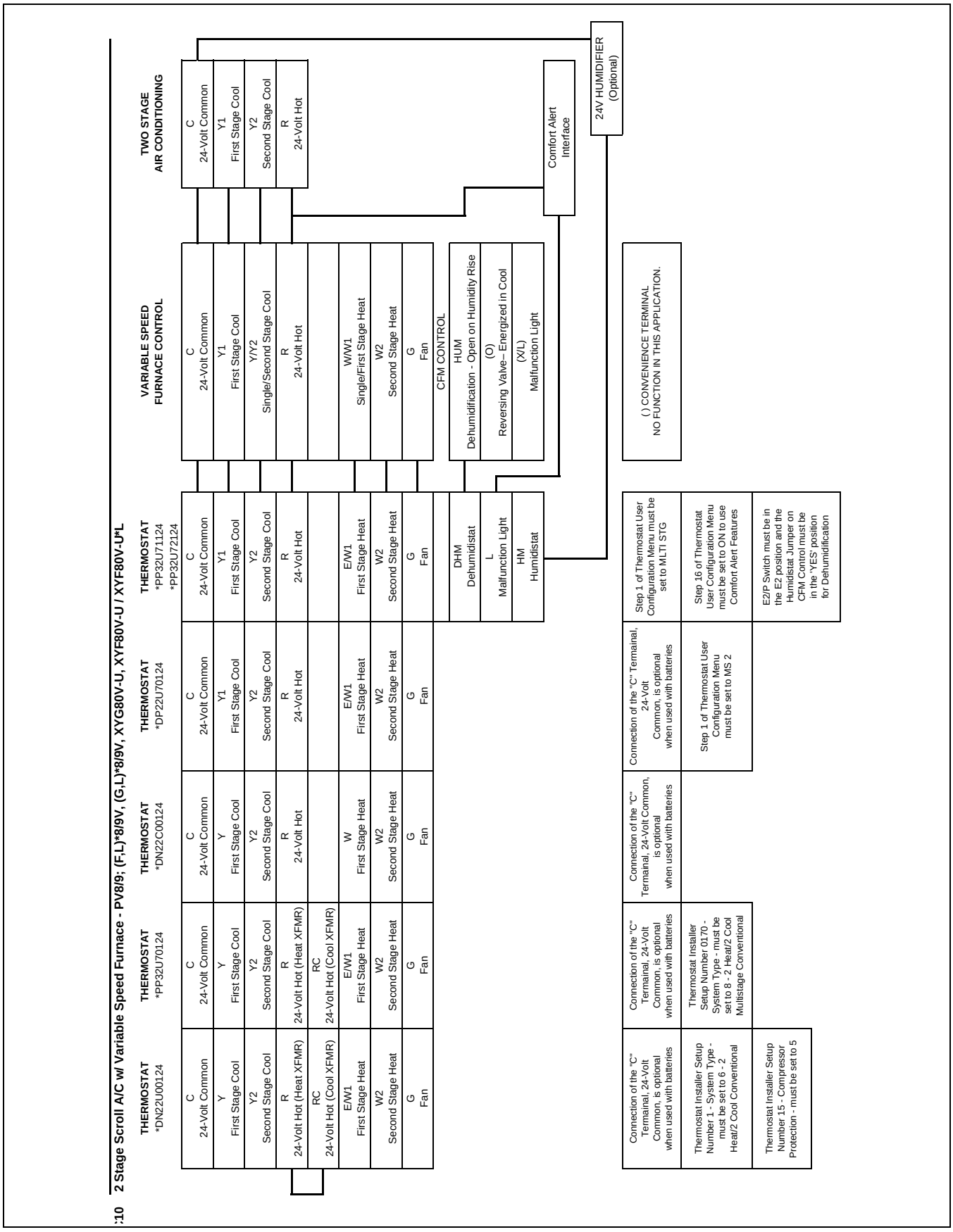
1H/1C, manual change-over electronic non-programmable thermostat.

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

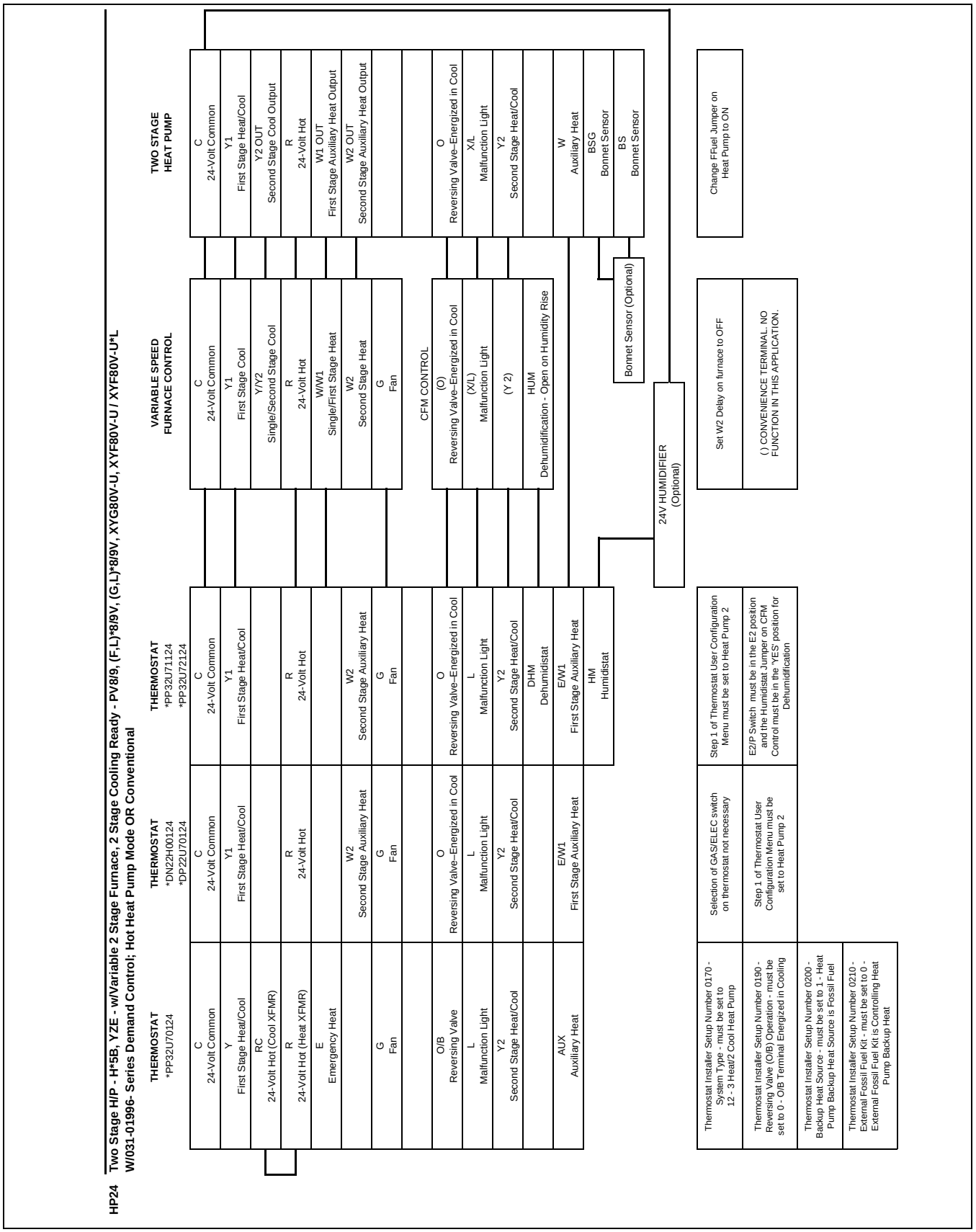
1H/1C, auto/manual changeover, electronic programmable.

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

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

246800-YTG-D-0407
Supersedes: 246800-YTG-C-0806

Unitary Products Group

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Norman OK 73069