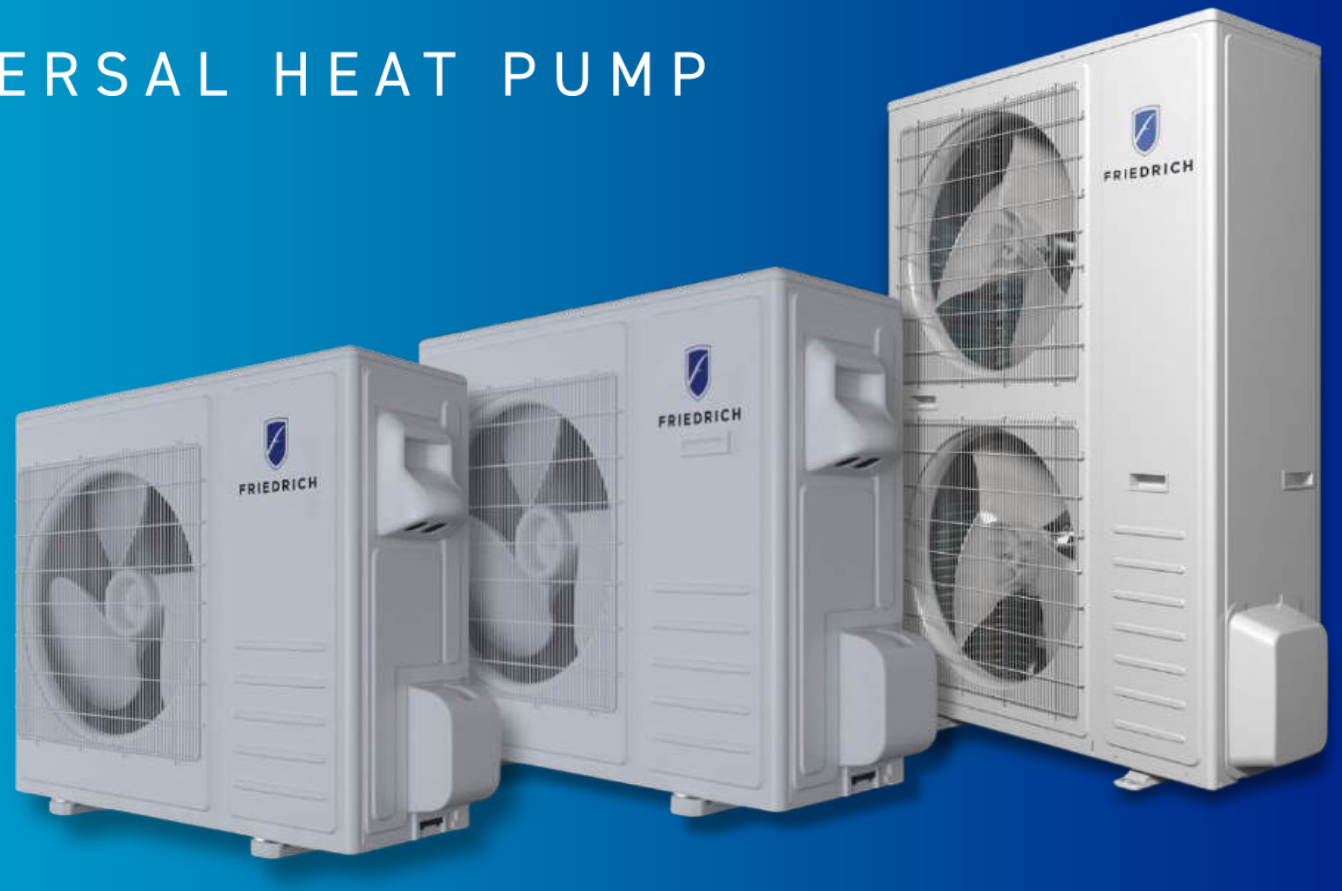
BREEZE™

THE UNIVERSAL HEAT PUMP



FRIEDRICH

Friedrich Breeze Universal Heat Pump (UHP)

UNIVERSAL COMPATIBILITY

Friedrich Breeze™ Ducted Mini Split Heat Pump installs into existing ductwork and can be paired with an existing gas-fired or electric furnace for retrofit applications. Or, install it with a matching Friedrich air handler for a complete package. Breeze is also compatible with most 24V thermostats or BMS.

ACCOMODATES LONG PIPING RUNS

For even more installation flexibility, Breeze's high-performance compressor accommodates long pipe runs, and can be installed in sites with piping of up to 246 ft. and height differentials of up to 98 ft.

SPACE-SAVING SLIM DESIGN

Its ultra-compact design features a smaller footprint that requires less outdoor space, with 36% reduction in volume and 40% reduction in footprint compared to traditional and top discharge outdoor units.

ENERGY SAVINGS

Precision Inverter® delivers efficiencies of up to 18.0 SEER2 and 9.5 HSPF2, all with cold climate operation. Energy Star® Certified for Cold Climate models available. Eligible for many federal & local tax credit & rebate incentives.

PRECISE TEMPERATURE CONTROL, BETTER COMFORT

The Precision Inverter® compressor ramps up quickly with Soft-Start™ technology to reach the indoor set temperature, then maintains precise temperature control for perfect comfort.

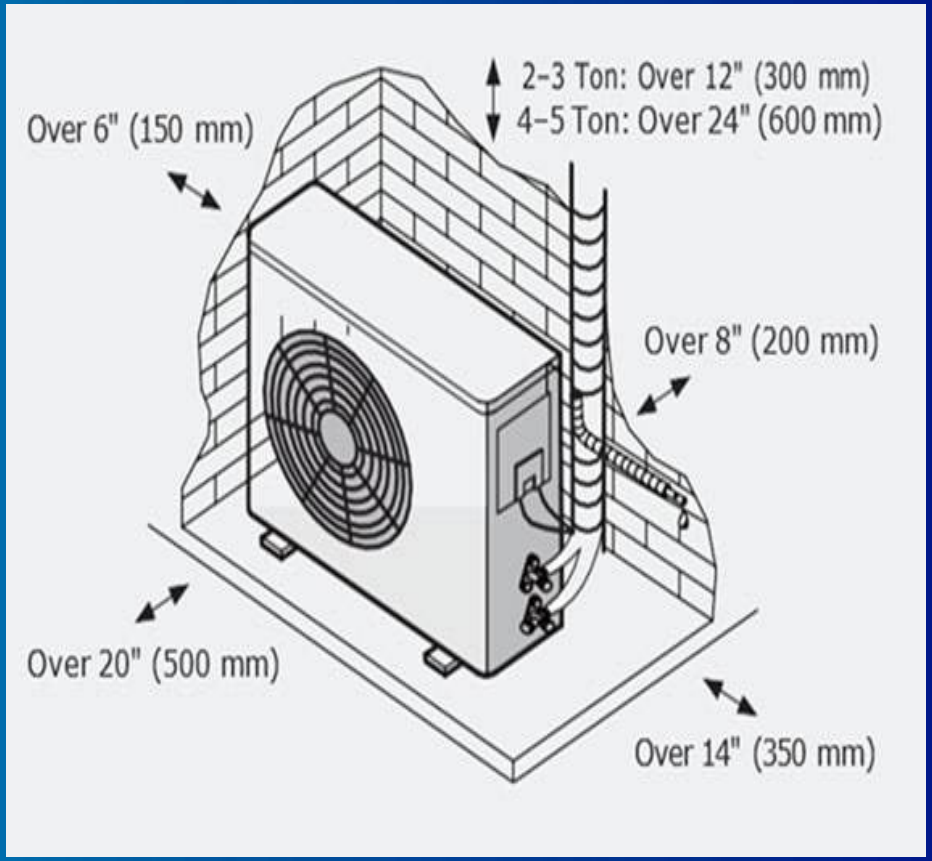
LOW SOUND LEVELS INDOORS AND OUT

Superior sound insulation and precise engineering provide the ultra-quiet air movement that are a Friedrich signature feature. Outdoors, the inverter-driven side discharge unit provides a quieter, more enjoyable outdoor space.

SOUND LEVELS DOWN TO 54 dB

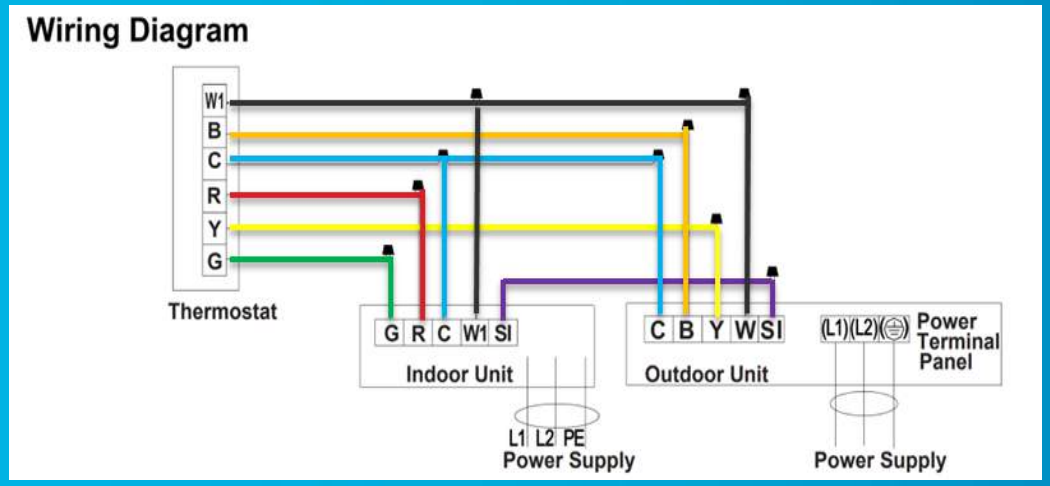
OPERATES IN EXTREME TEMPERATURES

Operates in temperatures down to -13° F in heat pump mode, and will provide cooling in temperatures as low as 5° F.



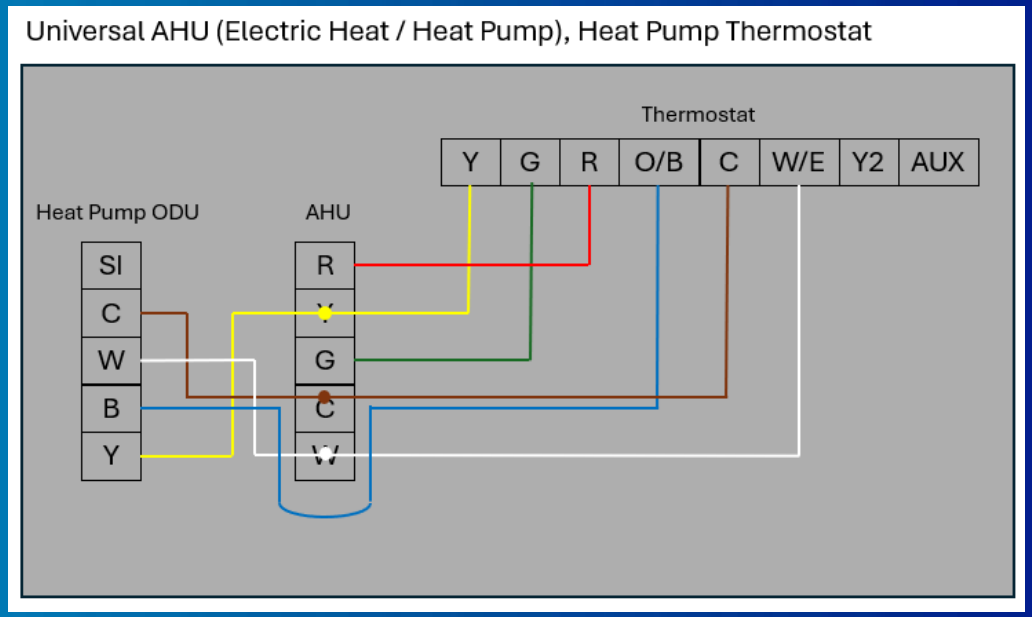
Friedrich Breeze™ – Wiring Diagrams

Breeze Matched System



- SI: (matched system) Communication signal Indoor to Outdoor
- G: Fan – Thermostat relay to AHU
- Y: Cooling signal Compressor – Thermostat relay to ODU
- R: 24V Power – Thermostat relay to AHU
- C: 24V Common– Thermostat relay to AHU/ODU
- 0/B:– Thermostat relay to ODU – reversing valve
- W: Heat signal

Universal Heat Pump w/AHU



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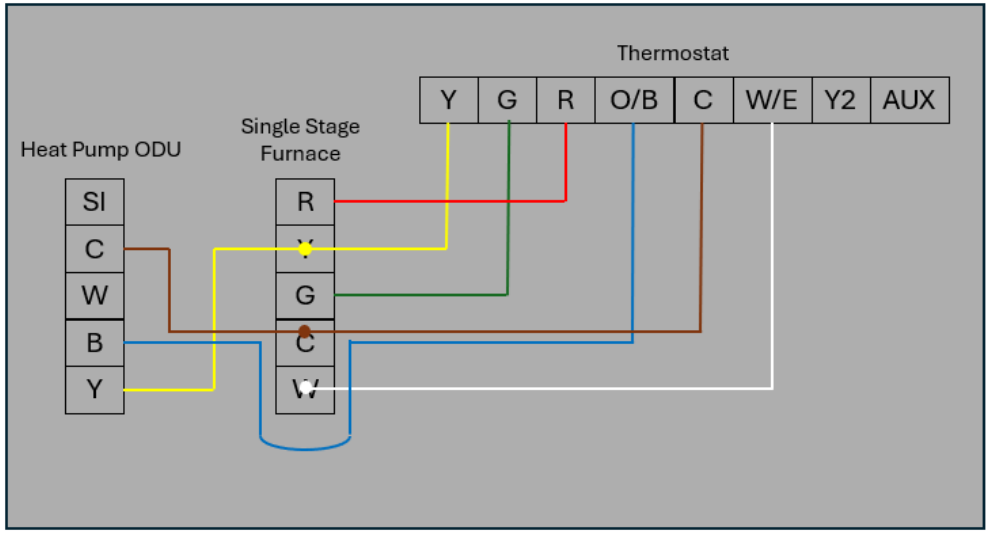
Friedrich Breeze™ – Wiring Diagrams

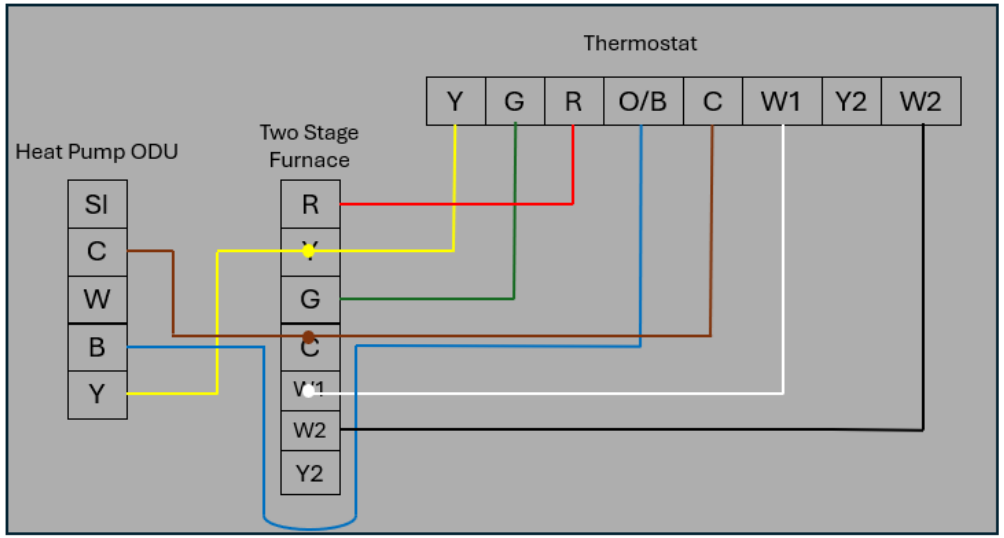
Dual Fuel/Hybrid Heat Systems

Single Stage Furnace (Dual Fuel Application), Smart Wi-Fi HP Thermostat



*Thermostat controls dual fuel application. Smart Wi-Fi required for Outside Temperature input

Two Stage Furnace (Dual Fuel Application), Dual Fuel Thermostat Control



*Thermostat controls dual fuel application. Smart Wi-Fi required for Outside Temperature input

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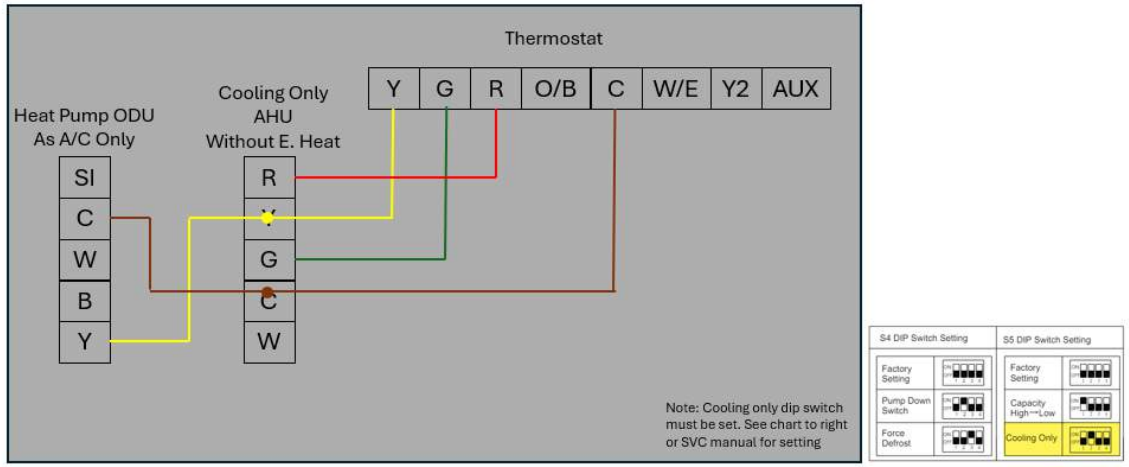
BREEZE™ THE UNIVERSAL HEAT PUMP

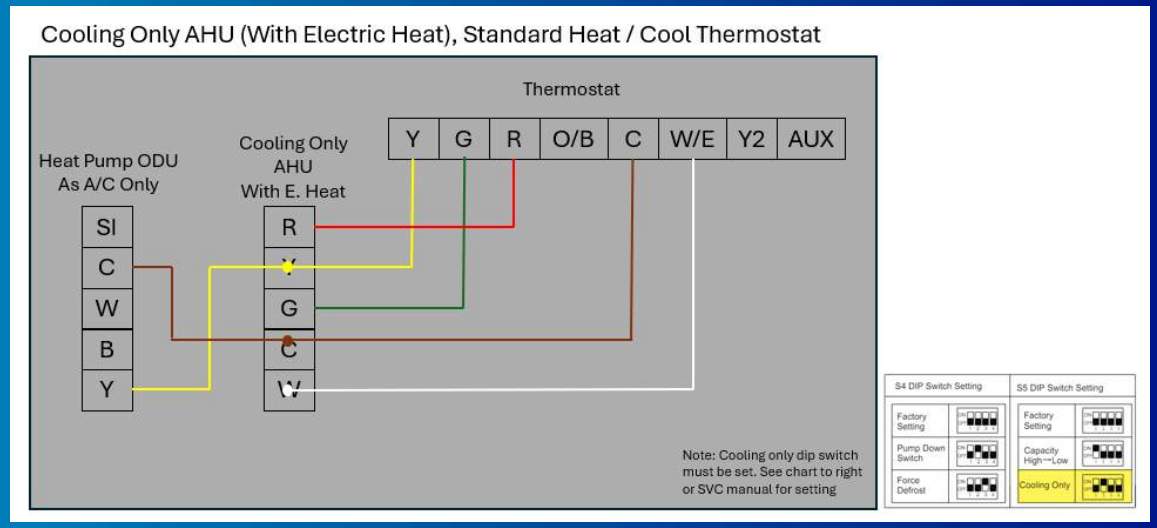
Friedrich Breeze™ – Wiring Diagrams

AC/Cooling Only – Heat Pump Defeatured via Dip Switch

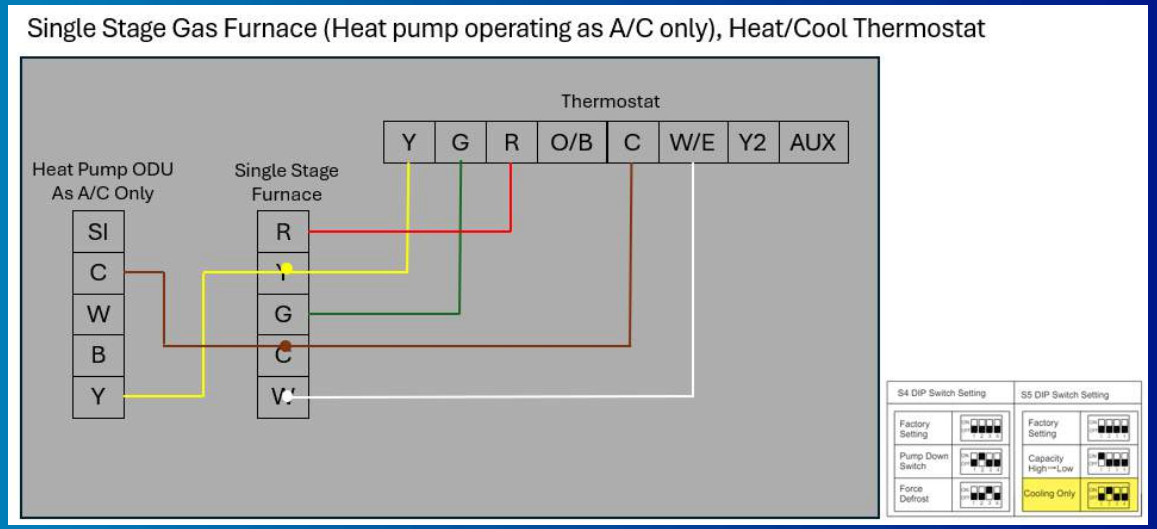
Cooling Only AHU (Without Electric Heat), Standard Heat / Cool Thermostat



Cooling Only AHU (With Electric Heat), Standard Heat / Cool Thermostat



Single Stage Gas Furnace (Heat pump operating as A/C only), Heat/Cool Thermostat



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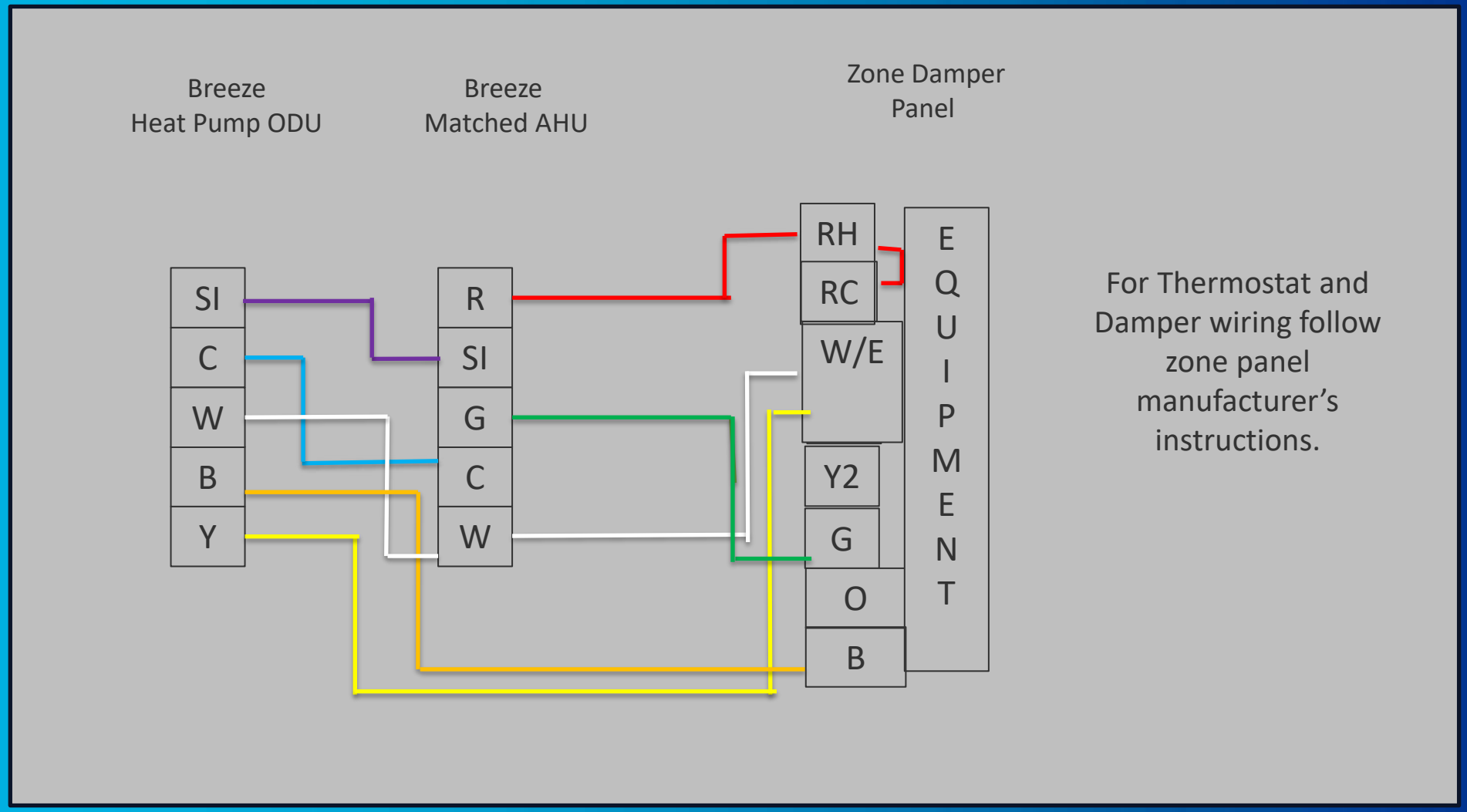
Friedrich Breeze™ – Wiring Diagrams

Breeze Universal ODU with Matched AHU with Zone Damper Panel



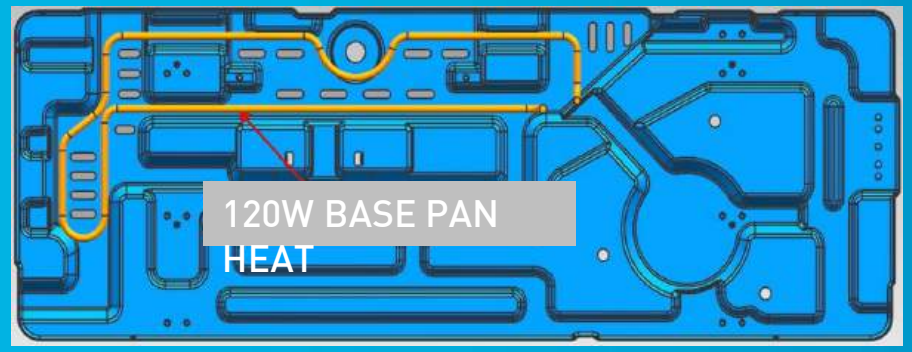
For Thermostat and Damper wiring follow zone panel manufacturer's instructions.

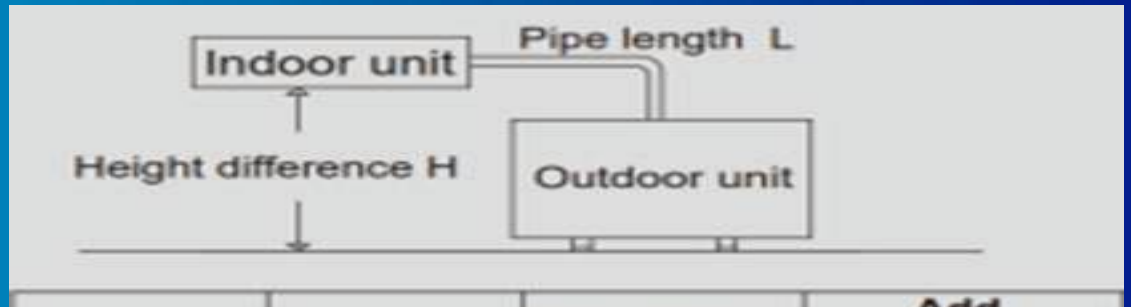
Friedrich Breeze Low Ambient Heating provides comfort deep into winter along with Long line set run capabilities.

Built-in base pan heater (All ODU)
Heating @ 4f -> ~70%
Heating @ -13f -> ~40%
Developed with rebates in mind

- NEEP
- Canada Greener Homes
- E-Star Cold Climate
- High Efficiency electric home

For information on rebates go to:
https://www.Friedrich.com/rebate-center





Model	Max. Pipe length (L)	Max. Height difference (H)	Add. Refrigerant [exceed 25ft 7.6m]
24K	164ft. (50m)	98ft. (30m)	0.38(oz/ft) [35(g/m)]
36K	246ft. (75m)	98ft. (30m)	0.38(oz/ft) [35(g/m)]
48K/60K	246ft. (75m)	98ft. (30m)	0.60(oz/ft) [56(g/m)]

Refrigerant additional charge
The outdoor unit is pre-charged to accommodate a total piping length of 25FT.
Additional refrigerant (r410A) is required for extending the piping beyond 25ft.
24K/36K: Additional refrigerant charge= (L-25) ft * 0.38 oz/ft
48K/60K: Additional refrigerant charge= (L-25) ft * 0.60 oz/ft

IDU DIP Switch Settings for Proper Air Flow / CFM / Static

Breeze AHU – Field Settings:

Operation

Static Pressure Setting:

DIP SW S2 Setting	Blower Speed Tap	Fan Speed Select	Static Pressure In. W.C. 24K	Static Pressure In. W.C. 36K	Static Pressure In. W.C. 48K-60K
ON OFF 1 2 3 4	2	Medium Low (Default Setting)	0.18	0.24	0.28
ON OFF 1 2 3 4	3	Medium	0.25	0.4	0.4
ON OFF 1 2 3 4	4	Medium High	0.58	0.58	0.58
ON OFF 1 2 3 4	5	High	0.8	0.8	0.8

Note: Symbol " ■ " indicates the position of the dip switch.

Set DIP switch settings for fan speed/static pressure.

***Power unit off before making DIP switch changes.**

Note: For Non-Friedrich Indoor unit applications, please consult the manufacturers IOM for proper airflow settings

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Outdoor Unit DIP Switch Settings

Force defrost mode
Move switch #3 on the S4 dip switch from OFF to ON and system set it in heating mode, then it will run with manual defrosting mode at once.

Cooling only set
Move switch #2 on the S5 Dip switch from OFF to ON. Heating mode will be invalid after the DIP has been dialed.

Pump down mode
Move switch #2 on the S4 Dip switch from OFF to ON. The compressor runs with the target frequency, and without any protection when frequency rises

S4 Dip Switch Setting		S5 Dip Switch Setting	
Factory Setting		Factory Setting	
Pump Down Switch		Capacity High → Low	
Force Defrost		Cooling Only	

Outdoor Unit Model	Indoor Unit Connect
24K	18K
36K	30K
48K	42K
60K	48K

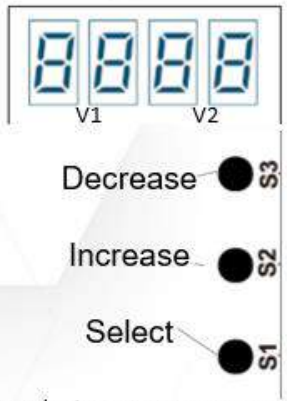
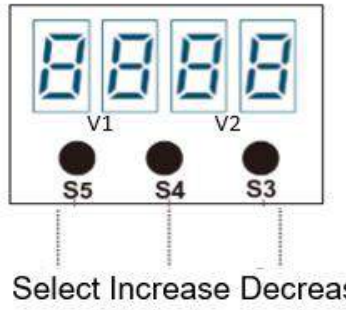
IMPORTANT / NOTICE

Power needs to be *applied* to outdoor unit before switching S4 Dip Switch 2 and 3

Power needs to be *removed* to outdoor unit before switching S5 Dip Switch 2 and 3

Breeze Heat Pump Outdoor Unit

Digital Display Board

Items	24K/36K	48K/60K
1.Find the Digital Display Board in the outdoor.		
2.Learn about the Digital Display Board .	  **Select Button :** Select to display outdoor/indoor unit parameter **Increase Button :** Each time it is pressed, the number rises by 1. **Decrease:** Each time it is pressed, the number lowers by 1. The parameter content will be automatically displayed after the parameter code is selected for 3s.	 **Select Button :** Indoor parameters and outdoor parameters can be selected in turn by pressing it. "P."/"H."-outdoor unit parameter **Increase Button :** Each time it is pressed, the number rises by 1, hold down it, the number will be rapidly increased; **Decrease:** Each time it is pressed, the number lowers by 1, hold down it, the number will be rapidly decreased.

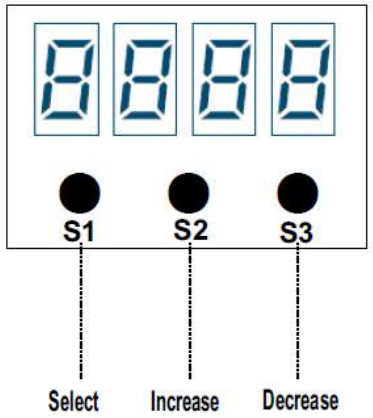
Breeze Heat Pump Outdoor Unit

Enter Test Mode

Items	24K/36K	48K/60K
3.Set it according to the current test condition	 Press S1 to make V1 display P. Press S2 and S3 to adjust to P.40 The digital tube V2 will display 0, adjust 0 to 1 Press S2 and S3 to adjust to P.41 The digital tube V2 will display 0, adjust 0 to 1 Press S2 and S3 to adjust to P.42 The digital tube V2 will display 28, which means 28℃ frequency lock	Press S5 to make V1 display H. Press S4 and S3 to adjust to H.7 Release SW5 after three seconds Press S4 and S3 to adjust to the corresponding frequency lock temperature (28℃) Press S4 and S3 at the same time to make the digital tube display GOOD, which means the frequency lock is successful. 

Running Parameters 2/3 ton

The Breeze outdoor unit allows you to display a list of running parameters as well as any active fault codes on the digital display.



There are 3 buttons on the 7 segment board.

1) Select button: Select to display outdoor/indoor unit parameter.

"P." -- Parameter of outdoor unit

2) Increase button: Each time it is pressed, the number rises by 1.

3) Decrease button: Each time it is pressed, the number lowers by 1.

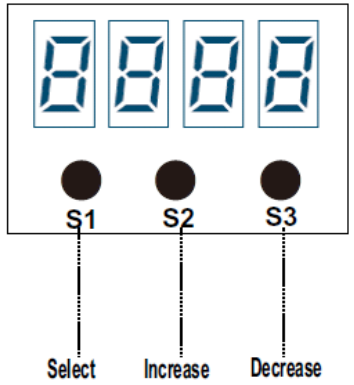
The parameter content will be automatically displayed after the parameter code is selected for 3s.

Note that temperatures will be in Celsius, and pressure will be in MPa (Megapascals) .

Parameter code	
P.0	Fault codes
P.1	Compressor actual frequency
P.2	Compressor driving frequency
P.4	Compressor target frequency
P.5	Compressor exhaust temperature (°C)
P.6	Outdoor suction temperature(°C)
P.7	Outdoor ambient temperature(°C)
P.8	Outdoor coil temperature(°C)
P.9	Outdoor defrosting temperature(°C)
P.10	IPM module temperature(°C)
P.11	Outdoor capacity requirement
P.13	Outdoor DC Motor target speed
P.14	AC input current
P.15	AC input voltage
P.16	DC bus voltage
P.17	Compressor phase current
P.18	Frequency limit code
P.20	Target suction overheating
P.21	Target exhaust overheating
P.22	Actual suction overheating (heating)
P.23	Actual exhaust overheating (heating)

Running Parameters 4/5 ton

The Breeze outdoor unit allows you to display a list of running parameters as well as any active fault codes on the digital display.



There are 3 buttons on the7 segment display board.

1) Select button:
Indoor parameters or outdoor parameters can be selected in turn by pressing it.
"P."/"H."-outdoor unit parameter

2) Increase button:
Each time it is pressed, the number rises by 1, hold down it, the number will be rapidly increased;

3) Decrease button:
Each time it is pressed, the number lowers by 1, hold down it, the number will be rapidly decreased.

Note that temperatures will be in Celsius, and pressure will be in MPa (Megapascals) .

Parameter code	Descriptions
0	Protection code or fault code
P.1	Target frequency
P.2	Driving frequency
P.4	Outdoor EEV opening
P.5	Outdoor EEV target opening
P.6	Upper DC motor revolving speed
P.8	AC Input voltage
P.9	Current
P.10	Modular temperature(℃)
P.11	Capacity needed
P.12	Modular fault
P.20	Outdoor ambient temperature(℃)
P.21	Outdoor coil temperature(℃)
P.22	Outdoor defrost temperature(℃)
P.23	Suction temperature (℃)
P.24	Discharge temperature(℃)
H.1	DSH actual value
H.2	DSH target value
H.3	Target pressure in cooling mode (Actual pressure= the displayed value/100) (MPa)
H.4	Target pressure in heating mode (Actual pressure= the displayed value/100)(MPa)
H.5	Actual pressure (Actual pressure=the displayed value/100)(MPa)

Breeze: Field Adjusting Refrigerant Level

Using EPA approved service equipment, add or recover refrigerant according to the refrigerant calculation.
Allow system to stabilize for 20 minutes after adjusting charge level..

MEASURE SUBCOOLING TO VERIFY PROPER CHARGE
If you want to adjust charging by checking “Subcooling”, please follow below.
NOTE: Charging equipment must use dedicated VG74 oil gauges and hoses.

1. Purge gauge lines.
2. Connect service gauge manifold to liquid base valve service ports.
3. Convert the liquid pressure to temperature using a temperature/pressure chart.
4. Temporarily install a thermometer on the liquid line at the liquid line service valve . Ensure the thermometer makes adequate contact and is insulated for best possible readings.
5. Subtract the liquid line temperature from the converted liquid pressure to determine subcooling.
6. Before starting the subcooling adjustment, make sure the outdoor ambient temperature is in a below range and the unit is operating at 100% capacity(indoor and outdoor should all be same tons , for example 2T Breeze indoor and 2T Breeze outdoor). If the unit is operating at 100% capacity 65HZ compressor drive speed or higher is ready for charge by subcooling.
7. If the system subcooling is not within the 8-12 range, adjust subcooling according to the following procedure.

a. If subcooling is low, add charge to adjust the subcooling.
b. If subcooling is high, remove charge to lower the subcooling. Do Not remove charge on systems with line set lengths shorter than 25. System will hold additional factory charge critical at 25’ of line charge.

Breeze: Field Adjusting Refrigerant Level

SUBCOOLING = (SAT. LIQUID TEMP.) - (LIQUID LINE TEMP.)
Charging Table
Note:

1. Subcooling information is valid only while the unit is entering test mode.
2. Not more than 3/8 lb. (6 oz.) of refrigerant be added to the system at a time to achieve the target subcooling. It is recommended adding 1 oz. refrigerant each time, then wait 10 minutes to stabilize the system.
3. Check the Schrader ports for leaks and tighten valve cores, if necessary, install caps finger.
4. Do not adjust the charge based on suction pressure.

OD Ambient Temp（degF）	＜65°F	65°F to 105°F		＞105°F
		AC (Cooling Only）	HP(Heat Pump)	
Subcooling (degF)	Weigh in Charge	2.0T 12±1°F	2.0T 8±1°F	Weigh in Charge
		3.0T 14±1°F	3.0T 9±1°F	
		4.0T 11±1°F	4.0T 9±1°F	
		5.0T 11±1°F	5.0T 8±1°F	

SATURATED LIQUID PRESSURE TEMPERATURE CHART	
LIQUID PRESSURE PSIG	R-410A °F
200	70
210	73
220	76
225	78
235	80
245	83
255	85
265	88
275	90
285	92
295	95
305	97

SATURATED LIQUID PRESSURE TEMPERATURE CHART	
LIQUID PRESSURE PSIG	R-410A °F
325	101
355	108
375	112
405	118
415	119
425	121
435	123
445	125
475	130
500	134
525	138
550	142

Warranty Disclosure

- 7-year All parts out of the box
- 10-year Compressor out of the box
- *Warranty Commencing on the date of installation or 120 days after original End-user purchase date
- 10-year Parts / 10-Year Compressor with system product registration at Friedrich.com

CAUTION!

REMOVE BLOWER WHEEL FOAM INSERT BEFORE INSTALLATION