BREEZE

THE UNIVERSAL HEAT PUMP





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.



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.





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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

Universal AHU (Electric Heat / Heat Pump), Heat Pump Thermostat







Friedrich Breeze[™] – Wiring Diagrams

Dual Fuel/Hybrid Heat Systems











Friedrich Breeze[™] – Wiring Diagrams

AC/Cooling Only – Heat Pump Defeatured via Dip Switch



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



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





S5 DIP Switch Setting

Factory Setting

Capacity High-Lov

10000



Friedrich Breeze™ – Wiring Diagrams

Breeze Universal ODU with Matched AHU with Zone Damper Panel







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





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 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 2 3 4	5	High	0.8	0.8	0.8

Note: Symbol " I " 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







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	ON OFF 1234	Factory Setting	ON OFF 1 2 3 4		
Pump Down Switch	ON OFF 1234	Capacity High → Low	ON OFF 1234		
Force Defrost	ON OFF 1234	Cooling Only	ON OFF 1234		

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

IMPORTANT / NOTICE

Power needs to be <u>applied</u> 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	48К/60К			
1.Find the Digital Display Board in the outdoor.					
2.Learn about the Digital Display Board .	7 segment display Image: Select Button : Select to display outdoor/indoor unit parameter Increase Button : Select to display outdoor/indoor unit parameter Increase: Each time it is pressed, the number rises by 1. Decrease: Each time it is pressed, the number rises 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 1Press S2 and S3 to adjust to P.41 The digital tube V2 will display 0, adjust 0 to 1Press S2 and S3 to adjust to P.42 The digital tube V2 will display 0, adjust 0 to 1Press S2 and S3 to adjust to P.42 The digital tube V2 will display 28, which means 28°C 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°C) 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).







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."/ $^{\mu}$ 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).

F	Parameter	Descriptions			
	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(°C)			
	P.11	Capacity needed			
	P.12	Modular fault			
	P.20	Outdoor ambient temperature(°C)			
	P.21	Outdoor coil temperature(°C)			
	P.22	Outdoor defrost temperature(°C)			
	P.23	Suction temperature (°C)			
	P.24	Discharge temperature(°C)			
	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		SATURATED LIQUID PRESSURE TEMPERATURE CHART		SATURATED LIQUID PRESSURE TEMPERATURE CHART		
)		AC (Cooling Only)	HP(Heat Pump)			LIQUID PRESSURE	R-410A ∘⊏	LIQUID PRESSURE	R-410A °⊏	
	Weigh in Charge		2.0T 8±1°F	Weigh in Charge	- - - - - - - - - - - - - - - - - - -	PSIG	Г	PSIG	F	
		2.0T 12±1°F				200	70	325	101	
						210	73	355	108	
		3.0T 14±1°F	3.0T 9±1°F			220	76	375	112	
						225	78	405	118	
						235	80	415	119	
Subcooling						245	83	425	121	
(degF)		4.0T 11±1°F 4.0T 9±1°F	4.0T 9±1°F			255	85	435	123	
						265	88	445	125	
						275	90	475	130	
						285	92	500	134	
			5 OT 8+19E			295	95	525	138	
		5.01 1111 F	5.01 011 F			305	97	550	142	
					1					





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





