

# Technical Data Manual

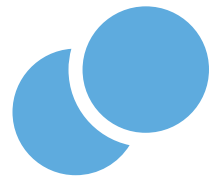
Model Numbers and Pricing: See Price List



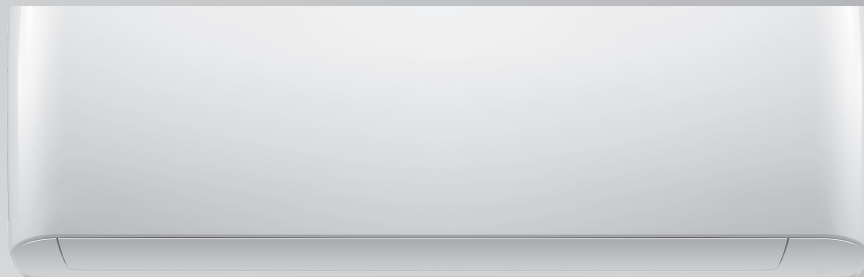
**DLFSHCH Series**

**Models 06XAK, 09XAK, 12XAJ, 12XAK, 18XAK, 24XAK, 30XAK, AND 36XAK**

Ductless Unit Split System



## VITOCAL IND-H



*Product may not be exactly as shown*

## **LOW SOUND LEVELS**

When noise is a concern, the ductless systems are the answer. The indoor units are whisper quiet. There are no compressors indoors, either in the conditioned space or directly over it, and there is none of the noise usually generated by air being forced through ductwork.

## **SECURE OPERATION**

If security is an issue, outdoor and indoor units are connected only by refrigerant piping and wiring to prevent intruders from crawling through ductwork. In addition, since the outdoor units can be installed close to an outside wall, coils are protected from vandals and severe weather.

## **FAST INSTALLATION**

This compact ductless system is simple to install. A mounting bracket is standard with the indoor units and only wire and piping need to be run between the indoor and outdoor units. These units are fast and easy to install ensuring minimal disruption to customers in the home or workplace. This makes the **DLFSHC** ductless systems the equipment of choice, especially in retrofit situations.

## **SIMPLE SERVICING AND MAINTENANCE**

Removing the top panel on outdoor units provides immediate access to the control compartment, providing a service technician access to check unit operation. In addition, the draw-thru design of the outdoor section means that dirt accumulates on the outside surface of the coil. Coils can be cleaned quickly from the inside using a pressure hose and detergent. On all indoor units, the New Removable Blower assembly and Hood Style cover make maintenance and service less complicated. Additionally, due to Newly Designed, easy-to-use and cleanable filters, service and maintenance expense is reduced. In addition, these high wall systems have extensive self-diagnostics to assist in troubleshooting.

## **BUILT-IN RELIABILITY**

Ductless system indoor and outdoor units are designed to provide years of trouble-free operation. The high wall indoor units include protection against freeze-up and high evaporator temperatures on heat pumps. The condensing units on heat pumps are protected by a three minute time delay before the compressor starts the over-current protection and the high temperature protection.

## **INDIVIDUAL ROOM COMFORT**

Maximum comfort is provided because each space can be controlled individually based on usage pattern. The air sweep feature provided permits optimal room air mixing to eliminate hot and cold spots for occupant comfort. Each unit is equipped with a New Humidity Sensor to keep your space comfortable. Year-round comfort can be provided with heat pumps.

## **ECONOMICAL OPERATION**

The ductless system design allows individual room heating or cooling when required. Equipped with a New Occupancy Sensor, the system can be set to only operate when the room is being utilized. There is no need to run large supply-air fans or chilled water pumps to handle a few spaces with unique load patterns. In addition, because air is moved only in the space required, no energy is wasted while air moves through the ducts.

## **EASY-TO-USE CONTROLS**

The high wall units have microprocessor-based controls to provide the ultimate in comfort and efficiency. The user friendly wireless remote control provides the interface between the user and the unit.

## **ACCESSORIES**

Customizing these ductless systems to your application is easily accomplished. Adding a condensate pump accessory to the high wall fan coil provides installation flexibility.

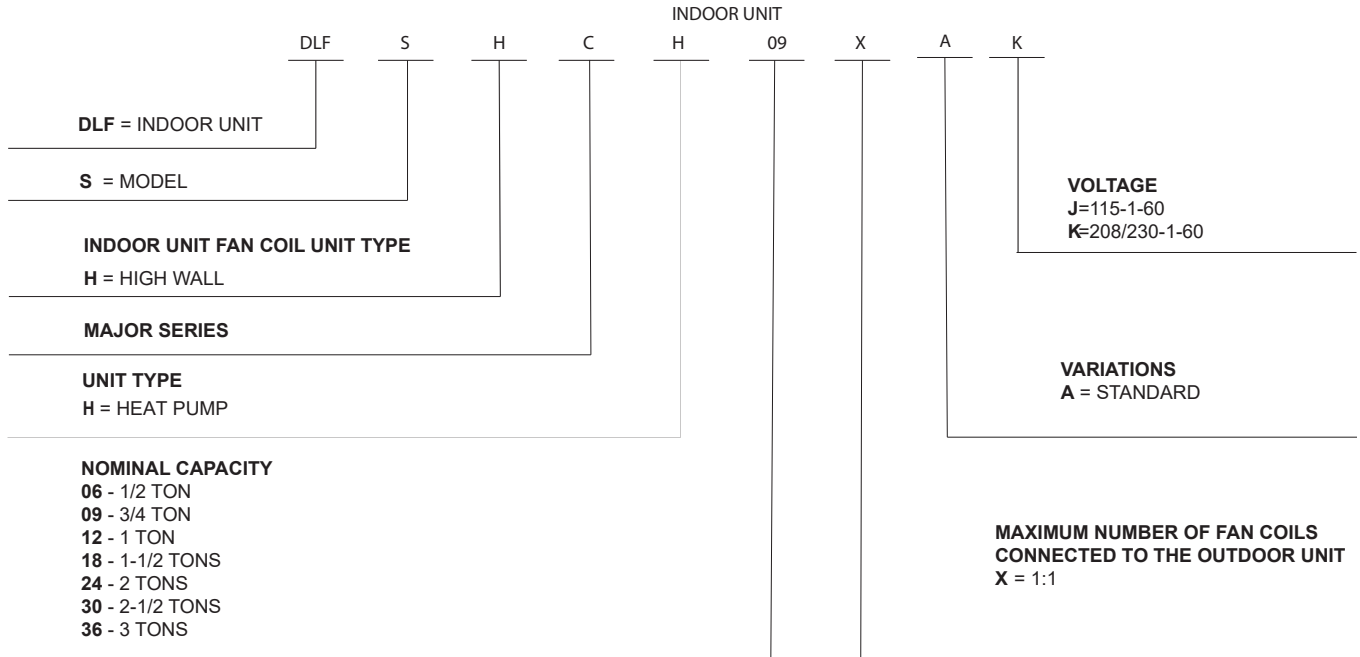
## **OPTIONAL WIRED CONTROLLER**

Optional 24V Interface for 3rd Party Control  
Optional Wi-Fi Kit for Smart Phone Control

## **AGENCY LISTING**

All systems are listed with AHRI (Air Conditioning, Heating & Refrigeration Institute), and ETL.

# MODEL NUMBER NOMENCLATURE



Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to [www.ahridirectory.org](http://www.ahridirectory.org).

## STANDARD FEATURES AND ACCESSORIES

<b>Ease Of Installation</b>	
Mounting Brackets	S
Low Voltage Controls	S
<b>Comfort Features</b>	
Microprocessor Controls	S
Wired Remote Controller	A
Wireless Remote Controller	S
Automatic Up-Down Airflow Louver Swing	S
Air Direction Control	S
Auto Restart Function	S
Cold Blow Protection On Heat Pumps	S
Freeze Protection Mode on Heat Pumps	S
Turbo Mode	S
Silence Mode	S
Auto Changeover on Heat Pumps	S
Follow Me	S
<b>Energy Saving Features</b>	
Sleep Mode	S
Stop/Start Timer	S
46° F Heating Mode (Heating Setback)	S
<b>Safety And Reliability</b>	
Indoor Coil Freeze Protection	S
Indoor Coil High Temp Protection in Heating Mode	S
Aluminum Hydrophilic pre-coated fins	S
<b>Ease Of Service And Maintenance</b>	
Cleanable Filters	S
Diagnostics	S
Carbon Filter	S
<b>Application Flexibility</b>	
Condensate Pumps	A

### Legend

S - Standard

A - Accessory

## Accessories

Accessory No.	Description	For Models
KSACN0801AAA	WIRED REMOTE CONTROL 7 DAY PROGRAMMABLE	All Sizes
KSACN0101AAA	WIRED REMOTE CONTROL WITH TIMER FUNCTION	All Sizes
KSAIC0401230	24V INTERFACE KIT 230V	208/230V MODELS
KSAIF0601AAA	Wi-Fi Kit High Wall Mid-Tier	All Sizes

## DIMENSIONS - INDOOR

HIGH WALL UNIT SIZE		12K	6K	9K	12K	18K	24K	30K	36K
(VOLTAGE)		(115V)	(208/230V)	(208/230V)	(208/230V)	(208/230V)	(208/230V)	(208/230V)	(208/230V)
Height (H)	In/ (mm)	11.61(295)	11.61(295)	11.61(295)	11.61(295)	12.56(319)	14.57(370)	14.57(370)	14.57(370)
Width (W)	In/ (mm)	31.3(795)	31.3(795)	31.3(795)	31.3(795)	37.99(965)	44.88(1140)	44.88(1140)	44.88(1140)
Depth (D)	In/ (mm)	8.86(225)	8.86(225)	8.86(225)	8.86(225)	9.41(239)	10.83(275)	10.83(275)	10.83(275)
Weight - Net	lbs. (kg)	22.93(10.4)	22.71(10.3)	22.71(10.3)	22.93(10.4)	27.12(12.3)	43.65(19.8)	43.65(19.8)	43.65(19.8)

## CLEARANCES

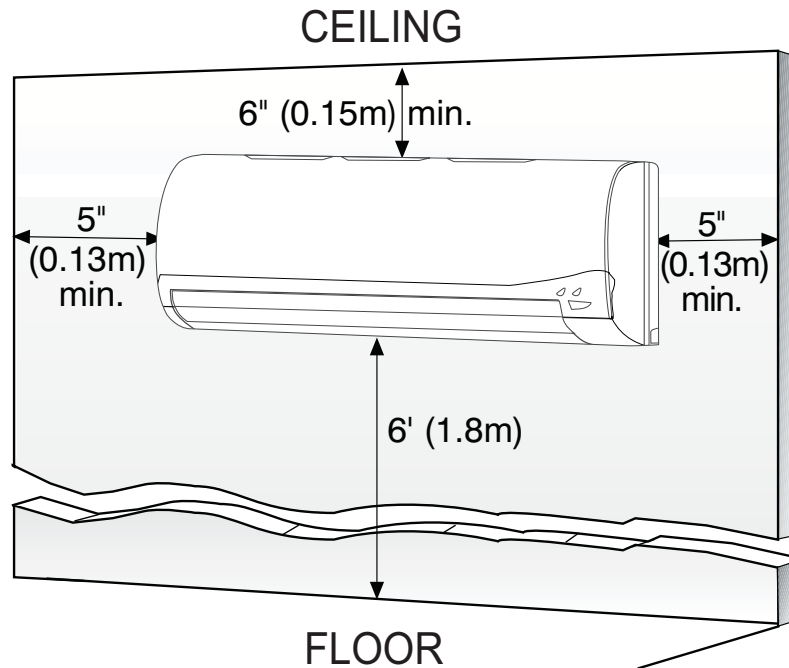


Fig. 2 — Indoor Unit Clearances

**NOTE:** The top clearance recommended for proper return airflow is 5.9in (15cm). Reduction of this clearance may decrease unit performance. This may be reduced to 2.0in (80mm) as long as the right and left clearances are achieved.

# SPECIFICATIONS

System	Size		12	6	9	12	18	24	30	36
	Indoor Model		DLFSHCH 12XAJ	DLFSHCH 06XAK	DLFSHCH 09XAK	DLFSHCH 12XAK	DLFSHCH 18XAK	DLFSHCH 24XAK	DLFSHCH 30XAK	DLFSHCH 36XAK
Electrical	Voltage, Phase,Cycle	V/Ph/Hz	115-1-60	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60
	Power Supply		Indoor unit powered from outdoor unit							
Controls	Wireless Remote Controller (°F/°C Convertible)		Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
	Wired Remote Controller (°F/°C Convertible)		Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
	24V Interface for 3rd Party Thermostat Control		Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
	Wi-Fi Control for Phone App Control		Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Operating Range	Cooling Indoor DB Min - Max	*F(°C)	63~90 (17~32)	63~90 (17~32)	63~90 (17~32)	63~90 (17~32)	63~90 (17~32)	63~90 (17~32)	63~90 (17~32)	63~90 (17~32)
	Heating Indoor DB Min - Max	*F(°C)	32~86 (0~30)	32~86 (0~30)	32~86 (0~30)	32~86 (0~30)	32~86 (0~30)	32~86 (0~30)	32~86 (0~30)	32~86 (0~30)
Piping	Pipe Connection Size - Liquid	in (mm)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	1/4 (6.35)	3/8 (9.52)	3/8 (9.52)	3/8 (9.52)
	Pipe Connection Size - Suction	in (mm)	1/2 (12.7)	3/8 (9.52)	3/8 (9.52)	1/2 (12.7)	1/2 (12.7)	5/8 (16)	5/8 (16)	5/8 (16)
Indoor Coil	Face Area	Sq. Ft.	2.15	2.15	2.15	2.15	2.75	3.60	3.60	3.60
	No. Rows		2	2	2	2	2	3	3	3
	Fins per inch		20	20	20	20	20	20	20	20
	Circuits		3	3	3	3	4	7	7	7
Indoor	Unit Width	in (mm)	31.3 (795)	31.3 (795)	31.3 (795)	31.3 (795)	37.99 (965)	44.88 (1140)	44.88 (1140)	44.88 (1140)
	Unit Height	in (mm)	11.61 (295)	11.61 (295)	11.61 (295)	11.61 (295)	12.56 (319)	14.57 (370)	14.57 (370)	14.57 (370)
	Unit Depth	in (mm)	8.86 (225)	8.86 (225)	8.86 (225)	8.86 (225)	9.41 (239)	10.83 (275)	10.83 (275)	10.83 (275)
	Net Weight	lbs (kg)	22.93 (10.4)	22.71 (10.3)	22.71 (10.3)	22.93 (10.4)	27.12 (12.3)	43.65 (19.8)	43.65 (19.8)	43.65 (19.8)
	Fan Speeds		4	4	4	4	4	4	4	4
	Airflow (lowest to highest)	CFM	235/294/ 353/412	176/229/ 335/382	176/229/ 335/382	176/229/ 335/382	306/376/ 524/635	319/414/ 611/719	382/505/ 646/843	382/505/ 646/843
	Sound Pressure (lowest to highest)	dB(A)	24/30/41/47	32/34/38/47	32/34/38/47	30/32/37/47	37/40/46/48	37/39/44/52	38/41/46/52	39/41/46/52
	Air throw Data	ft (m)	27.9 (8.5)	21.3 (7.1)	24.9 (7.6)	26.2 (8.0)	27.9 (8.5)	31.5 (9.6)	33.8 (10.3)	33.8 (10.3)
	Moisture removal	Pint/h (L/h)	58(1.16)	16 (0.32)	18(0.35)	56(1.11)	110(2.18)	132(2.6)	188(3.7)	291(5.75)
Field Drain Pipe Size O.D.	in (mm)	5/8 (16)	5/8 (16)	5/8 (16)	5/8 (16)	5/8 (16)	5/8 (16)	5/8 (16)	5/8 (16)	

\* Performance may vary based on the Outdoor unit matched to. See compatible Outdoor Units pages for Performance Data

## COMPATIBILITY

INDOOR UNIT	DLFSHCH12XAJ	DLFSHCH06XAK	DLFSHCH09XAK	DLFSHCH12XAK	DLFSHCH18XAK	DLFSHCH24XAK	DLFSHCH30XAK	DLFSHCH36XAK	
OUTDOOR UNIT SINGLE ZONE	DLCSRBH12AAJ	DLCSRBH06AAK	DLCSRBH09AAK	DLCSRBH12AAK	DLCSRBH18AAK	DLCSRBH24AAK	DLCSRBH30AAK*	DLCSRBH36AAK*	
Outdoor Unit Multi-zone		DLCMRBH18BAK							
		DLCMHBH24CAK							
		DLCMHBH30DAK							
		DLCMRBH36DAK/DLCMHBH36DAK							
		DLCMRBH48EAK/DLCMHBH48EAK							

## APPLICATION DATA

### Unit Selections

Select equipment that either matches or is supports slightly more than the anticipated peak load. This provides better humidity control, fewer unit cycles, and less part-load operation.

For units used in spaces with high sensible loads, base equipment selection on unit sensible load, not on total anticipated load. Adjust for anticipated room wet bulb temperature to avoid undersizing the equipment.

### Unit Mounting (Indoor)

Refer to the unit's installation instructions for further details.

**Unit leveling** - For reliable operation, units should be level in all planes.

**Clearance** - Provide adequate clearance for airflow. See Fig. 2 — on page 5.

**Unit location** - Select a location which provides the best air circulation for the room. These units should be positioned as high as possible on the wall for the best air circulation. The unit return and discharge should not be obstructed by furniture, curtains, or anything which may cause unit short cycling or air recirculation.

Place the unit in the middle of the selected wall (if possible). Use an outside wall, if available, to make piping easier, and place the unit so it faces the normal location of room occupants.

### Unit Mounting (Outdoor)

Refer to the unit's installation instructions for further details.

**Do not** install the indoor or outdoor units in a location with special environmental conditions. For those applications, contact your Carrier representative.

### Mounting Template

Refer to the unit's installation instructions for further details. The fan coil units are furnished with mounting to mark the location of the wiring, and the refrigeration line hole locations.

### Support

Adequate support must be provided to support the weight of all the fan coils.

### System Operating Conditions

OPERATING RANGE MIN/MAX °F / °C		
	COOLING	HEATING
<b>INDOOR DB</b>	63 / 90 (17 / 32)	32 / 86 (0 / 30)
<b>INDOOR WB</b>	59 / 84 (15 / 29)	

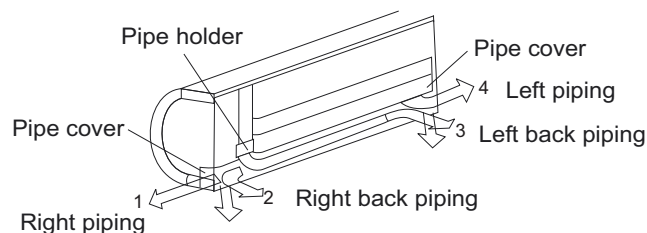
**NOTE:** Reference the product installation instructions for more information.

### Drain Connections

Install drains to meet the local sanitation codes. If adequate gravity drainage cannot be provided, the unit should be equipped with an accessory condensate pump. The high wall fan coil unit condensate pumps have a maximum lift of 10' (3.05 m) for 9k and 12k units and 25' (7.62 m) for 18k and 30k units. See the physical dimension tables for the drain sizes.

**NOTE:** High wall fan coil units have internal condensate traps. A trap is not required.

Drain connections may be routed through alternate locations on most fan coils (see Fig. 3).



**Fig. 3 — Piping Locations**

## WIRING

All wires must be sized per NEC (National Electrical Code) or CEC (Canadian Electrical Code) and local codes. Use Electrical Data table MCA (minimum circuit amps) and MOCP (maximum over current protection) to correctly size the wires and the disconnect fuse or breakers respectively.

Per the caution note, only stranded copper conductors with a 600 volt insulation rating wire must be used.

### Recommended Connection Method for Power and Communication Wiring:

The main power is supplied to the outdoor unit. The field supplied 14/3 stranded wire with ground with a 600 volt insulation rating, power/communication wiring from the outdoor unit to indoor unit consists of four (4) wires and provides the power for the indoor unit. Two wires are line voltage AC power, one is communication wiring (S) and the other is a ground wire. Wiring between indoor and outdoor unit is polarity sensitive. The use of BX wire is NOT recommended.

If installed in a high Electromagnetic field (EMF) area and communication issues exists, a 14/2 stranded shielded wire can be used to replace L2/N and (S) between outdoor unit and indoor unit landing the shield onto ground in the outdoor unit only.



## CAUTION

### EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Wires should be sized based on NEC and local codes.



## CAUTION

### EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Be sure to comply with local codes while running wire from the indoor unit to the outdoor unit.

Every wire must be connected firmly. Loose wiring may cause the terminal to overheat or result in unit malfunction. A fire hazard may also exist. Ensure all wiring is tightly connected.

No wire should touch the refrigerant tubing, compressor or any moving parts.

Disconnecting means must be provided and shall be located within sight and readily accessible from the air conditioner.

## Control System

The indoor unit is equipped with a microprocessor control to perform two functions:

1. Provide safety for the system
2. Control the system and provide optimum levels of comfort and efficiency.

The main microprocessor is located on the control board of the fan coil unit (outdoor units also have a microprocessor) with thermistors located in the fan coil air inlet and on the indoor coil. Heat pump units have a thermistor on the outdoor coil. These thermistors monitor the system operation to maintain the unit within acceptable parameters and controls the operating mode.

### Wireless Remote Controller (P/N: 17317100A27614)



Fig. 4 — Wireless Remote Controller

### 24 Interface (Optional)

P/N KSAIC0401230 for 208-230V models

Allows the Ductless System to be controlled using a Third Party Thermostat.

### Wi-Fi Kit for Smart Phone Control (Optional)

P/N KSAIF0601AAA

Allows the Ductless System to be controlled using a connected smart phone application.

## AIRFLOW DATA

SYSTEM SIZE		12K	6K	9K	12K	18K	24K	30K	36K
		(115V)	(208/230V)	(208/230V)	(208/230V)	(208/230V)	(208/230V)	(208/230V)	(208/230V)
Indoor (CFM)	Turbo	412	365	382	382	635	719	843	843
	High	353	318	335	335	524	611	646	639
	Medium	294	218	229	229	376	414	505	506
	Low	235	168	176	176	306	319	382	382

## AIR THROW DATA

HIGH WALL UNIT CAPACITY	MAX. APPROXIMATE AIR THROW ft. (m)
12K 115	27.9(8.5)
6K 230	21.3 (7.1)
9K 230	24.9(7.6)
12K 230	26.2(8.0)
18K 230	27.9(8.5)
24K 230	31.5(9.6)
30K 230	33.8(10.3)
36K 230	33.8(10.3)

## AIR MOISTURE

Size		12	6	9	12	18	24	30	36
Voltage, Phase, Cycle	V/Ph/Hz	115-1-60	208/230-1-60						
Dehumidifying Volume	Liter/hr.	1.16	0.32	0.35	1.11	2.18	2.6	3.7	5.75
Dehumidifying Volume	PINT/D	58	16	18	56	110	132	188	291

\* The dehumidifying volumes for the 6K unit will be available in a future release.

## SOUND PRESSURE

HIGH WALLS INDOOR		12K	6K	9K	12K	18K	24K	30K	36K
		(115V)	(208/230V)	(208/230V)	(208/230V)	(208/230V)	(208/230V)	(208/230V)	(208/230V)
Cooling Operation Indoor	dB(A) at (Turbo / High (100%) / Med (60%) / Low (40%) CFM)	46.8/41.3/30.2/24.4	46/35.7/31.6/30.2	47.2/37.9/33.7/31.5	46.7/37/32.3/29.8	48.4/46/39.8/36.5	52.1/43.5/39.2/36.7	52.3/46/40.9/38.3	52.1/45.7/41.1/38.6
Heating Operation Indoor Sound Pressure	dB(A) at (Turbo / High (100%) / Med (60%) / Low (40%) CFM)	46.1/38.1/32.5/30.2	46.2/37.1/33/31.7	46.1/39/34.5/32.4	46.2/37.4/32.9/30.5	46.9/44.7/38.7/35.5	52/44.1/38.2/36.5	50.4/43.5/39/36.5	50.6/48.9/43.0/36.6

## FAN AND MOTOR SPECIFICATIONS

HIGH WALL UNIT SIZE		12K (115 V)	6K (208/230 V)	9K (208/230 V)	12K (208/230 V)	18K (208/230 V)	24K (208/230 V)	30K (208/230 V)	36K (208/230 V)	
HIGH WALL FAN	Material	Acrylontrile Styrene +30%GF	Acrylontrile Styrene +30%GF	Acrylontrile Styrene +30%GF	Acrylontrile Styrene +30%GF	Acrylontrile Styrene +30%GF	Acrylontrile Styrene +30%GF	Acrylontrile Styrene +30%GF	Acrylontrile Styrene +30%GF	
	Type	GL-98*638-IN	GL-98*638-IN	GL-98*638-IN	GL-98*638-IN	GL-98*758-IN	GL-121*883-IN	GL-121*883-IN	GL-121*883-IN	
	Diameter	In (mm)	3.86(98)	3.86(98)	3.86(98)	3.86(98)	3.86(98)	4.76(121)	4.76(121)	4.76(121)
	Height	In (mm)	25.12(638)	25.12(638)	25.12(638)	25.12(638)	29.84(758)	34.76(883)	34.76(883)	34.76(883)
HIGH WALL FAN MOTOR	Model	ZKFP-20-8-113	ZKFP-20-8-6-21	ZKFP-20-8-6-21	ZKFP-20-8-6-21	ZKFP-30-8-3-10	ZKFP-58-8-1-6	ZKFP-58-8-1-6	ZKFP-58-8-1-6	
	Volts	V	115	208/230	208/230	208/230	208/230	208/230	208/230	
	Phase		1	1	1	1	1	1	1	
	FLA		0.2	0.25	0.25	0.25	0.13	0.5	0.5	0.5
	MCA		0.25	0.31	0.31	0.31	0.16	0.63	0.63	0.63
	Type		DC	DC	DC	DC	DC	DC	DC	DC
	Insulation class		E	E	E	E	E	E	E	E
	Safe class		IP20 (Welling, Dayang)/ IPX0(Tongda)	IPX0	IPX0	IPX0	IPX4	IP20(Welling)/ IP40(Dayang)	IP20(Welling)/ IP40(Dayang)	IP20(Welling)/ IP40(Dayang)
	Input	W	65.8 (Welling, Tongda)/ 68(Dayang)	24.6	24.6	36	36	113.5(Welling)/ 125(Dayang)	113.5(Welling)/ 125(Dayang)	113.5(Welling)/ 125(Dayang)
	Output	W	20	20	20	20	30	58	58	58
	Range of current	Amps	0.467±10% (Welling, Tongda)/ 0.486±10% (Dayang)	0.182±10%	0.182±10%	0.182±10%	0.11±10%	0.364±10% (Welling)/ 0.4±10% (Dayang)	0.364±10% (Welling)/ 0.4±10% (Dayang)	0.364±10% (Welling)/ 0.4±10% (Dayang)
	Rated current	Amps	0.467 (Welling, Tongda)/ 0.486(Dayang)	0.182	0.182	0.182	0.11	0.364(Welling)/ 0.4(Dayang)	0.364(Welling)/ 0.4(Dayang)	0.364(Welling)/ 0.4(Dayang)
	Capacitor	µF	NA	NA	NA	NA	NA	NA	NA	NA
	Rated HP	HP	0.027	0.027	0.027	0.027	0.04	0.077	0.077	0.077
Speed	rev/min	1200/910/720	1100/850/700	1100/850/700	1050/930/870	1240/1024/916	1000/850/700	1050/880/630	1050/880/630	
Rated RPM	rev/min	1200	1100	1100	1050	1240	1000	1050	1050	
Max. input	W	65.8	24.6	24.6	24.6	36	113.5	113.5	113.5	

**NOTE: Refer to the outdoor unit installation instructions (indoor unit powered by the outdoor unit).**

# WIRING DIAGRAM

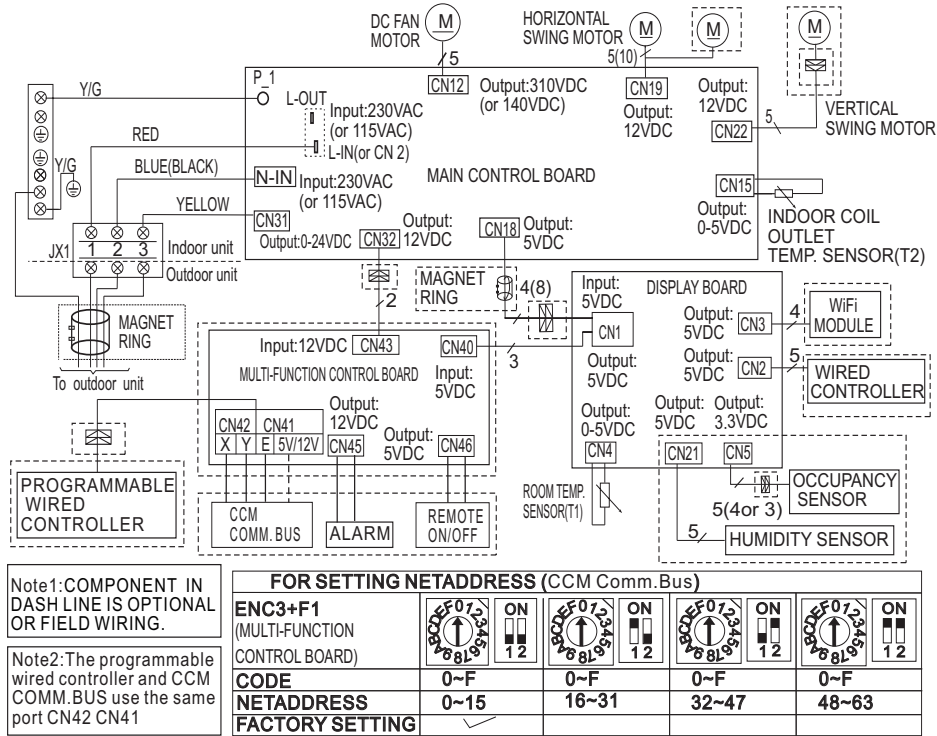
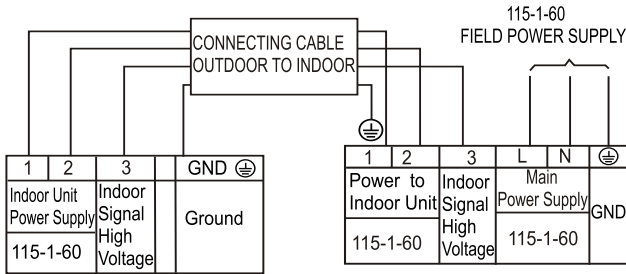


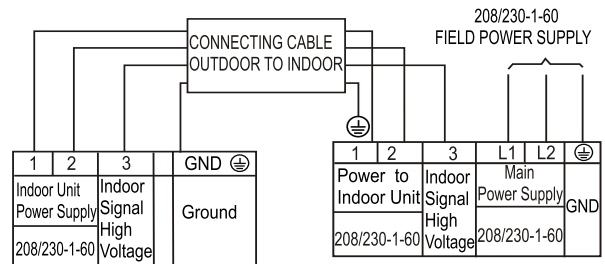
Fig. 5 — Wiring Diagram Sizes 6K - 36K (115V and 208/230V)

## CONNECTION DIAGRAMS



USE COPPER SUPPLY WIRES ONLY.

Fig. 6 — Connection Diagram 115V



USE COPPER SUPPLY WIRES ONLY.

Fig. 7 — Connection Diagram 208/230V

# GUIDE SPECIFICATIONS

## INDOOR WALL-MOUNTED DUCTLESS UNITS

Size Range: 1/2 to 3 Ton Nominal Cooling and Heating Capacity Model Number: **DLFSHC**

### Part 1 - GENERAL

#### 1.01 System Description

Indoor, wall-mounted, direct expansion fan coils are matched with the heat pump outdoor unit.

#### 1.02 Agency Listings

Units are rated per AHRI Standards 210/240 and listed in the AHRI directory as a matched system.

#### 1.03 Delivery, Storage, And Handling

Units are stored and handled per the unit manufacturer's recommendations.

#### 1.04 Warranty (For Inclusion By Specifying Engineer)

### Part 2 - PRODUCTS

#### 2.01 Equipment

##### **A. General: Indoor, direct expansion, wall-mounted fan coil**

Unit is complete with a cooling/heating coil, fan, fan motor, piping connectors, electrical controls, microprocessor control system, and integral temperature sensing. Unit is furnished with an integral wall mounting bracket and mounting hardware.

##### **B. Unit Cabinet:**

Cabinet discharge and inlet grilles are attractively styled, high-impact polystyrene. Cabinet is fully insulated for improved thermal and acoustic performance.

##### **C. Fans:**

1. Fan is the tangential direct-drive blower type with air intake at the top of the unit and discharge at the bottom front. An automatic, motor-driven vertical air sweep is provided as standard equipment.
2. The air sweep operation is user selectable. The vertical sweep may be adjusted (using the remote control). The horizontal air direction may be set manually.

##### **D. Coil:**

The coil is a copper tube with aluminum fins and galvanized steel tube sheets. The fins are bonded to the tubes by mechanical expansion and anti-corrosive fin coating. A drip pan under the coil has a drain connection for the hose attachment to remove condensate. The condensate pan has an internal trap.

##### **E. Motors:**

Motors are open drip proof, with a permanently lubricated ball bearing. The fan motors is 4-speed.

##### **F. Controls:**

Controls consist of a microprocessor-based control system which controls space temperature, determine optimum fan speed, and run self diagnostics. The temperature control range is from 62°F to 86°F (17°C to 30°C) in increments of 1°F or 1°C, and have 46°F Heating Mode (Heating Setback). The wireless remote controller has the ability to act as the temperature sensing location for room comfort.

#### **The unit has the following functions as a minimum:**

1. An automatic restart after a power failure at the same operating conditions as at the failure.
2. A timer function to provide a minimum 24-hour timer cycle for system Auto Start/Stop.
3. Temperature sensing controls sense return air temperature.
4. Indoor coil freeze protection.
5. Wireless infrared remote control to enter set points and operating conditions.
6. Automatic air sweep control to provide on or off activation of air sweep louvers.
7. Dehumidification mode provides increased latent removal capability by modulating the system operation and the set point temperature.
8. Fan only operation to provide room air circulation when no cooling is required.
9. Diagnostics provide continuous checks of unit operation and warn of possible malfunctions. Error messages appear on the unit.
10. Fan speed control is user selectable: turbo, high, medium, low, or microprocessor controlled automatic operation during all operating modes.
11. Automatic heating-to-cooling changeover in the heat pump mode. Control includes deadband to prevent rapid mode cycling between heating and cooling.
12. Indoor coil high temperature protection detects excessive indoor discharge temperature when the unit is in the heat pump mode.

##### **G. Filters:**

Units have a filter track with factory-supplied cleanable filters.

##### **H. Electrical Requirements:**

Indoor fan motor to operate on 115V on model size 12 and on 208-230V on model sizes 06-36, as specified. Power is supplied by the outdoor unit.

##### **I. Operating Characteristics:**

The DLFSHC system has a minimum SEER (Seasonal Energy Efficiency Ratio) and HSPF at AHRI conditions, as listed on the specifications table.

##### **J. Refrigerant Lines:**

All units have refrigerant lines that can be oriented to connect from the left, right or back of unit. Both refrigerant lines need to be insulated.

##### **K. Special Features (Field Installed):**

###### **Condensate Pump:**

The condensate pump removes condensate from the drain pan when gravity drainage cannot be used. The pump is designed for quiet operation. The pump consists of two parts: an internal reservoir/sensor assembly, and a remote sound-shielded pump assembly. A liquid level sensor in the reservoir stops the cooling operation if the liquid level in the reservoir is unacceptable.









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