



# **Technical Sales Guide**

# DC INVERTER ROOFTOP PACKAGED AIR CONDITIONERS

(GC2023 - I)

CAPACITY RANGE: 24000~57000Btu/h(7.04~16.7kW)

OPERATION RANGE: COOLING:23°F(-5°C)~125.6°F(52°C)

HEATING:-22°F(-30°C)~75.2°F(24°C)



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# 1 PRODUCT LIST

Model	Product Code	Nominal Capacity (Ton)	Refrigerant	Power Supply	Appearance
GK-H02TC/NaA-T(U)	EJ51100070	2	R410A	208/230 1Ph~ 60Hz	
GK-H03TC/NaA-T(U)	EJ51001381	3	R410A	208/230 1Ph~ 60Hz	
GK-H04TC/NaA-T(U)	EJ51100030	4	R410A	208/230 1Ph~ 60Hz	
GK-H05TC/NaA-T(U)	EJ51100020	5	R410A	208/230 1Ph~ 60Hz	

## **2 NOMENCLATURE**

GK	_	Н	02	Т	С	/	Na	А	_	Т	(U)
1	-	2	3	4	5	-	6	7	_	8	9

No.	Description	Options
1	Product Category	GK=GREE Rooftop Packaged Air-condition
2	Product Function Code	C = Cooling only type; H = Heat pump type.
3	Cooling/Heating Capacity	02=2Ton; 03=3Ton 
4	Operating Condition	T=T3 Condition; N=T1 Condition.
5	Airflow Options	H=Horizontal; C=Convertible.
6	Refrigerant Options	Omit =R22; Na=R410A; Nh=R32.
7	Design Code	A,B,C
8	Voltage Options	T=208/230V, 1Ph, 60Hz

Produce by GREE



No.	Description	Options
9	Sales Region	U=North America; E=Middle East; L=Latin America.

## **3 PRODUCT FEATURES**

## 3.1 Description

The Gree Rooftop unit are completely assembled, piped and wired at the factory to provide one-piece shipment and rigging. Each unit is pressurized with a holding charge of refrigerant-410A for storage and shipping. The Gree Rooftop can offer the perfect combination of superior product quality, high operating efficiency and cost efficiency. The compact design, outstanding anti-corrosive cabinet and quiet operation make these units suitable for both light commercial and residential applications. The form dedicated design of each part to the unit assembling, together with complete test, the unit offers reliable operation and comfort experience. Comprehensive protections can guarantee the system safety and prevent damage of critical components such as compressor under harsh working conditions. All sheet metal parts are constructed of commercial grade galvanized steel. The unit external parts are coated with special paint to ensure anti-corrosion performance.

#### 3.2 Features

### 3.2.1 High energy efficiency and performance

#### ◆ DC inverter design

The Gree Rooftop unit meets ETL requirements. The compressor and outdoor fan can adjust the operating frequency according to different room loads, and automatically adjust the capacity output to ensure the comfort of the room environment. At the same time, the power consumption of the unit changes along with the capacity output and the power consumption of unit is low in low-load operation. Compared with the fixed-speed unit, its annual power consumption is lower, which is high-efficiency and power-saving.

#### ◆ DC inverter motor

Adopt DC inverter control. It is more power saving, green and eco-friendly. The unit adopts two-stage inverter compressor and DC motor. It realizes cooling in high temperature of 125°F and heating in ultra low temperature of -22°F through the technologies of low temperature enthalpy-adding, all DC inverter speed regulation, etc. The operation range is wide. Even in extreme high and low temperature, it can meet the cooling and heating demand of the user.

#### High-efficiency fan blade

New high-efficiency fan blade design adopts CFD simulation technology to optimize the matching of blade type and blade angle. In addition to the special trail edge design, the working area of blade is effectively increased and the air volume is greatly increased.

#### ♦ Heating capacity under low temperature will with less attenuation

The unit adopts double cylinder and two-stage inverter compressor, the evaporation temperature is as low as -40°F. It can enhance the mass flow rate and degree of supercooling of the system and satisfy the heating operation under ultra low temperature of -22°F through air supply enthalpy-adding



adjustment, the heating capacity at 15°F will not decay and heating capacity at 5°F will remain 80%, improving the comfort of heating in low temperature effectively and the energy conservation efficiency of it is 30% higher when compared with electrical heating.

#### 3.2.2 High reliability

#### Excellent grid adaptability

The Gree Rooftop A series adopts anti-grid fluctuations design, performs stably in ultra wide voltage range from 187V to 253V, which is perfectly adapted to the power grid fluctuation during peak hours or other conditions.

### ♦ Multiple protection design

The Gree Rooftop unit is designed with high voltage protection, low voltage protection, overcurrent protection and other protections. It can effectively protect key components such as compressor and motor in abnormal operation and harsh working conditions, extending the service life of the unit and ensuring safer and more reliable operation.

#### Automatic adjustment of throttling

The Gree Rooftop unit adopts throttling of electronic expansion valve, and automatically adjusts the opening degree in throttling according to the system high pressure and discharge temperature. It makes sure that the system parameters are within a reasonable range when the unit operates under all working conditions, to improve the operation reliability and service life of the unit.

#### Anti-crossflow design of outdoor fan

The outdoor fan of the Gree Rooftop unit adopts anti-crossflow startup design to solve the problem that the unit cannot start smoothly in the reverse operation under the high wind environment. The anti-wind startup design allows the unit to fully adapt to the harsh windy environment and start reliably. The outdoor fan runs smoothly, which is safer and more reliable.

#### 3.2.3 Two connection methods for temperature controller Strong adaptation

Two connection methods for temperature controller: two-core electrodeless communication and 24V connection. The anti-electromagnetic interference ability of two-core communication is strong, and the communication distance between wired controller and unit is 100m. Select the general communication cord and telephone wire. While the 24V connection is flexible, suitable for other temperature controllers, convenient for engineering reform and meets the installation demands of different projects.

#### 3.2.4 Easy to use

#### Auxiliary controller

The unit can be controlled remotely, or connected to the building control system for central control with other electric equipment, quite simple and convenient.



# **4 PRODUCT DATA**

## 4.1 Product Data at Rated Condition

	Model		GK-H02TC/NaA-T(U)	GK-H03TC/NaA-T(U)
	Cooling	kW	7.03	10.08
Canacity	Cooling	BTU/h	24000	34400
Capacity	Heating	kW	7.03	10.55
	Heating	BTU/h	24000	36000
S	EER	-	17.8	17.8
Н	SPF	-	8.8	8.8
E	ER	(Btu/h)/W	11	11
C	COP	W/W	3.4	3.4
Power supply		V/Ph/Hz	208/230/1/60	208/230/1/60
N	MOP	Α	40	40
N	/ICA	А	35	35
Refrigerant	charge volume	lbs	11	11
Sound pr	essure level	dB(A)	63	63
Dimension	Outline	in	44-1/8×35-3/8×49-3/16	44-1/8×35-3/8×49-3/16
(W×D×H)	Package	in	44-5/8×35-15/16×50-13/16	44-5/8×35-15/16×50-13/16
Net weight	Net weight/Gross weight		523/545	523/545
Loading quantity	40'GP/40'HQ	unit	26/52	26/52

	Model		GK-H04TC/NaA-T(U)	GK-H05TC/NaA-T(U)
	Cooling	kW	13.77	16.41
Congoity	Cooling	BTU/h	47000	56000
Capacity	Heating	kW	13.77	16.71
	пеаші	BTU/h	47000	57000
S	EER	-	17.8	17
Н	SPF	-	8.5	8.3
E	ER	(Btu/h)/W	11	10.6
C	COP	W/W	3.24	3.18
Power supply		V/Ph/Hz	208/230/1/60	208/230/1/60
N	ЮР	Α	45	45
N	лCA	Α	39.1	39.1
Refrigerant	charge volume	lbs	14.8	14.8
Sound pr	essure level	dB(A)	68	68
Dimension	Outline	in	44-1/8×44-1/8×49-3/16	44-1/8×44-1/8×49-3/16
(W×D×H)	Package	in	44-5/8×44-5/8×50-13/16	44-5/8×44-5/8×50-13/16
Net weight	/Gross weight	lbs	628/650	628/650
Loading quantity	40'GP/40'HQ	unit	20/40	20/40



#### Notice:

- (1) The cooling capacity stated above is measured under following conditions:
  - Indoor Conditions: 26.7°CDB/19.4°CWB (80.1°FDB/66.9°FWB).
- Outdoor Conditions: 35°CDB/24°CWB (95°FDB/76°FWB).
- (2) The heating capacity stated above is measured under following conditions:
  - Indoor Conditions: 21.1°C DB/15.6°C WB (70°FDB/60°F WB).
  - Outdoor Conditions: 8.3°C DB/6.1°C WB (46.9°FDB/42.9°F WB).
- (3) The technical parameters are changed along with the products improvement; please refer to the name plate of the unit for actual data.

## 4.2 Working Range

Mode	Range of Outdoor Temperature°C(°F)
Cooling	-5(23)~52(125.6)
Heating	-30(-22)~24(75.2)

## **5 CAPACITY CORRECTION**

## 5.1 Model: GK-H02TC/NaA-T(U)

Outdoor		Indoor Temperature			
Temperature DB(HD)	15°C(60°F)	21°C(70°F)	27°C(80°F)		
°F	Capacity Btu/h	Capacity Btu/h	Capacity Btu/h		
-22(70%)	19200	18800	18000		
-15(70%)	20800	20400	19600		
-5(70%)	22800	22300	21400		
5(70%)	24500	24000	23000		
17(70%)	24500	24000	23000		
32(75%)	24500	24000	23000		
47(80%)	24500	24000	23000		
60(70%)	27200	26600	25600		

Outdoor	Indoor Temperature				
Temperature DB	15°C(60°F)	21°C(70°F)	27°C(80°F)		
°F	Capacity Btu/h	Capacity Btu/h	Capacity Btu/h		
50	18600	23300	26500		
65	18600	23300	26500		
75	18600	23300	26500		
85	17700	22200	25200		
95	16900	21100	24000		
105	15200	19000	21600		
115	14400	18100	20500		



# 5.2 Model: GK-H03TC/NaA-T(U)

Outdoor	Indoor Temperature				
Temperature DB(HD)	15°C(60°F)	21°C(70°F)	27°C(80°F)		
°F	Capacity Btu/h	Capacity Btu/h	Capacity Btu/h		
-22(70%)	19200	18800	18000		
-15(70%)	22800	22300	21400		
-5(70%)	26100	25600	24500		
5(70%)	29400	28800	27600		
17(70%)	33900	33200	31900		
32(75%)	36700	36000	34600		
47(80%)	36700	36000	34600		
60(70%)	40800	40000	38400		

Outdoor	Indoor Temperature				
Temperature DB	15°C(60°F)	21°C(70°F)	27°C(80°F)		
°F	Capacity Btu/h	Capacity Btu/h	Capacity Btu/h		
50	27200	34000	38600		
65	27200	34000	38600		
75	27200	34000	38600		
85	25900	32400	36800		
95	24200	30300	34400		
105	21800	27200	31000		
115	20700	25900	29400		

# 5.3 Model: GK-H04TC/NaA-T(U)

Outdoor		Indoor Temperature					
Temperature DB(HD)	15°C(60°F)	21°C(70°F)	27°C(80°F)				
°F	Capacity Btu/h	Capacity Btu/h	Capacity Btu/h				
-22(70%)	34500	33800	32500				
-15(70%)	37900	37100	35600				
-5(70%)	42200	41400	39700				
5(70%)	45900	45000	43200				
17(70%)	47900	47000	45100				
32(75%)	47900	47000	45100				
47(80%)	47900	47000	45100				
60(70%)	53200	52200	50100				



Outdoor	Indoor Temperature						
Temperature DB	15°C(60°F)	21°C(70°F)	27°C(80°F)				
°F	Capacity Btu/h	Capacity Btu/h	Capacity Btu/h				
50	35500	44400	50400				
65	35500	44400	50400				
75	35500	44400	50400				
85	33800	42200	48000				
95	33100	41400	47000				
105	29800	37200	42300				
115	28300	35400	40200				

## 5.4 Model: GK-H05TC/NaA-T(U)

Outdoor	Indoor Temperature					
Temperature DB(HD)	15°C(60°F)	21°C(70°F)	27°C(80°F)			
°F	Capacity Btu/h	Capacity Btu/h	Capacity Btu/h			
-22(70%)	31400	30800	29500			
-15(70%)	37800	37100	35600			
-5(70%)	42400	41600	39900			
5(70%)	47100	46200	44300			
17(70%)	58100	57000	54700			
32(75%)	58100	57000	54700			
47(80%)	58100	57000	54700			
60(70%)	64500	63300	60700			

Outdoor		Indoor Temperature	
Temperature DB	15°C(60°F)	21°C(70°F)	27°C(80°F)
°F	Capacity Btu/h	Capacity Btu/h	Capacity Btu/h
50	42100	52700	59900
65	42100	52700	59900
75	42100	52700	59900
85	40100	50200	57000
95	39400	49300	56000
105	33500	41900	47600
115	29500	36900	41900

## **6 AIR VOLUME STATIC PRESSURE CURVE**

Some units fan motor speed is adjustable, there are multiple static pressure mode, namely P03, P04, P05, P06, P07. Unit default static pressure mode is P05. The user can choose the suitable static pressure mode according to the actual air volume demand. External static pressure should stay within the minimum and maximum limits shown in the table below in order to ensure proper operation of both cooling, heating, and electric heating operation.



# 6.1 Model: GK-H02TC/NaA-T(U), GK-H03TC/NaA-T(U)

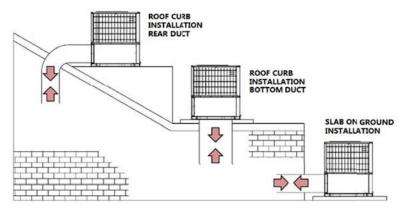
Model	GK-H03TC/NaA-T(U),GK-H02TC/NaA-T(U)								
		Static pressure:Inches W.C.(Pa)							
Level	0 (0)	0.1 (25)	0.2 (50)	0.3 (75)	0.4 (100)	0.5 (125)	0.6 (150)	0.7 (175)	0.8 (200)
Speed 4 (CFM)	1216	-	-	-	-	-	-	-	-
Speed 5 (CFM)	1293	-	-	-	-	-	-	-	-
Speed 6 (CFM)	1368	1264	-	-	-	-	-	-	-
Speed 7 (CFM)	1447	1348	1230	-	-	-	-	-	-
Speed 8 (CFM)	1501	1436	1327	1195	-	-	1	-	-
Speed 9 (CFM)	1506	1464	1417	1383	-	-	ı	-	-
Speed 10 (CFM)	1498	1466	1423	1378	1280	-	ı	-	-
Speed 11 (CFM)	1514	1472	1424	1385	1344	1303	-	-	-
Speed 12 (CFM)	1505	1467	1420	1375	1340	1303	1258	-	-
Speed 13 (CFM)	1510	1463	1424	1380	1340	1297	1258	1216	-

# 6.2 Model: GK-H04TC/NaA-T(U), GK-H05TC/NaA-T(U)

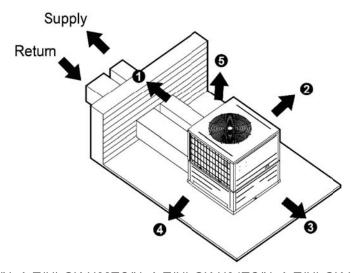
Model	GK-H05TC/NaA-T(U),GK-H04TC/NaA-T(U)								
	Static pressure:Inches W.C.(Pa)								
Level	0 (0)	0.1 (25)	0.2 (50)	0.3 (75)	0.4 (100)	0.5 (125)	0.6 (150)	0.7 (175)	0.8 (200)
Speed 4 (CFM)	1517	1	/	/	/	1	/	1	1
Speed 5 (CFM)	-	1464	/	/	/	1	/	1	1
Speed 6 (CFM)	-	1533	/	/	/	/	/	1	/
Speed 7 (CFM)	-	-	1517	/	/	/	/	1	/
Speed 8 (CFM)	-	-	1533	/	/	/	/	1	1
Speed 9 (CFM)	-	-	-	1525	/	1	/	1	/
Speed 10 (CFM)	-	-	-	-	1517	/	/	1	1
Speed 11 (CFM)	-	-	-	-	-	1558	1492	/	1
Speed 12 (CFM)	-	-	-	-	-	1566	1525	1480	1
Speed 13 (CFM)	-	-	-	-	-	1591	1538	1497	1470



## **7 INSTALLATION POSITIONS AND CLEARANCES**



## 7.1 Installation Clearances

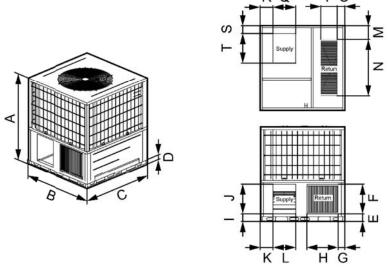


 $\mathsf{GK-H02TC/NaA-T(U)}, \mathsf{GK-H03TC/NaA-T(U)}, \mathsf{GK-H04TC/NaA-T(U)}, \mathsf{GK-H05TC/NaA-T(U)}$ 

	Installation clearances						
Dimension(minimum)	mm	inch					
1	600	24					
2	1100	43					
3	860	34					
4	1100	43					
5	1524	60					



## 7.2 Outline Dimension



GK-H02TC/NaA-T(U), GK-H03TC/NaA-T(U), GK-H04TC/NaA-T(U), GK-H05TC/NaA-T(U)

Unit:inch(mm)

Dimension		Α	E	3		С	D	)	
	49-1/4 (1250)		44 (1120)		35-7/16 (900)		2-1 (65	. —	
				Side a	air vents				
	Е	Size of air	return	G	_	Size of a	air supply	K	
		F	Н	G		J	L	I.	
GK-H02TC/NaA-T(U) GK-H03TC/NaA-T(U)	4-7/16	17-8/16	16-9/16	3-7/16	3-15/16	15-6/16	11-13/16	6-3/16	
GK-HUSTC/NAA-T(U)	(113)   (445)   (420)   (87)   (101)   (390)   (300)   (157)    Buttom air vents								
		Size of air	return	Battom	un vonto	Size of a	air supply		
N	M	N	Р	0	R	Q	Т	S	
	5-14/16 (149)	23-1/16 (586)	8-10/16 (219)	3-11/16 (93)	6-3/16 (156)	11-14/16 (302)	13-12/16 (350)	3-10/16 (92)	

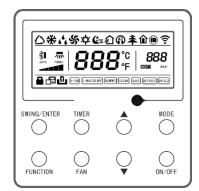
## Unit:inch(mm)

Dimension	F	4	E	3		С	D	)
	49-1/4 (1250)		44 (1120)		44 (1120)		2-1 (65	
				Side a	air vents			
	_	Size of ai	r return			Size of a	air supply	К
	Е	F	Н	G	'	J	L	K
GK-H04TC/NaA-T(U) GK-H05TC/NaA-T(U)	4 (101)	15-3/8 (390)	16-1/2 (420)	3-3/8 (87)	4 (101)	15-3/8 (390)	11-3/4 (300)	6-1/2 (166)
	Buttom air vents							
	М	Size of ai	Size of air return			Size of a	air supply	S
	IVI	N	Р	0	R	Q	Т	3
	7-7/8 (199)	28 (711)	9 (228)	3-3/4 (96)	6-1/2 (166)	11-3/4 (300)	15-3/8 (390)	4 (103)

Note: Above diagrams may be different from actual model.



## **8 CONTROLLER**



XK117(standard)

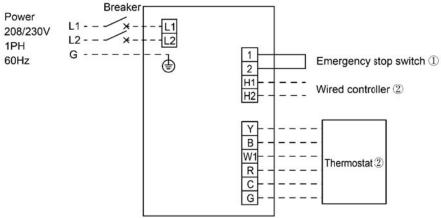


WK-010WA1(optional)

## 9 ELECTRICAL INSTALLATION

## 9.1 Field Wiring Diagrams

**Model:**GK-H02TC/NaA-T(U),GK-H03TC/NaA-T(U),GK-H04TC/NaA-T(U),GK-H05TC/NaA-T(U) Without electric heater:

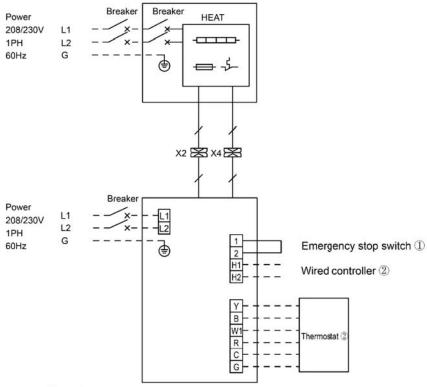


Note: ①The factory has been short-circuited, when the user needs to connect the emergency stop switch, please remove the corresponding short-circuit wire

The unit can only be connected to a thermostat or wire controller



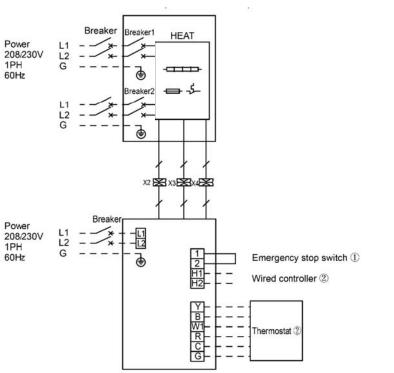
#### With electric heater:



Note: ①The factory has been short-circuited, when the user needs to connect the emergency stop switch, please remove the corresponding short-circuit wire

②The unit can only be connected to a thermostat or wire controller

Fig. with LYQ-08-A,LYQ-08-C



Note: ①The factory has been short-circuited, when the user needs to connect the emergency stop switch, please remove the corresponding short-circuit wire

②The unit can only be connected to a thermostat or wire controller

Fig. with LYQ-08-D,LYQ-08-E



# 9.2 Specification of Power Supply Wire and Circuit Breaker

Model	Power supply	Fuse capacity (A)	Maximum over- current protection(A)	Minimum circuit ampacity(A)
GK-H05TC/NaA-T(U) GK-H04TC/NaA-T(U)	208/230V-1Ph-60Hz	45	45	39.1
GK-H03TC/NaA-T(U) GK-H02TC/NaA-T(U)	208/230V-1Ph-60Hz	40	40	35

#### Notice:

- ① An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.
- ② The circuit breaker and power cord specification in above sheet is based on max power (max current) of the unit.
- ③ The power cord specification in above sheet is based on ambient temperature of 40°C.
- 4 If the supply cord is damaged, it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.
- The circuit breaker specification in above sheet is based on ambient temperature of 40°C. If the working condition is different, please adjust it according to the specification sheet of circuit breaker.

## 10 ACCESSORIES

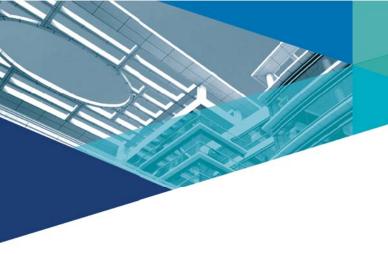
			Model
Part name	Model	Product code	GK-H02TC/NaA-T(U) GK-H03TC/NaA-T(U) GK-H04TC/NaA-T(U) GK-H05TC/NaA-T(U)
Wired controller	XK117	MC20700730	•
Thermostat	WK-010WA1	NC20700220	0

Note: "●"means standard, "○"means optional.

Gree reserves the right to modify the specifications without prior notice. Please confirm the final specifications with sales representative.

Electric heater kits available:

SN.	Heater kit model	Code	Description	Ref. unit use(ton)
1	LYQ-08-A	320004060202	Circuit breaker, 5kW heat strip	2.0/3.0/4.0/5.0
2	LYQ-08-C	320004060200	Circuit breaker, 10kW heat strip	2.0/3.0/4.0/5.0
3	LYQ-08-D	320004060201	Circuit breaker, 15kW heat strip	4.0/5.0
4	LYQ-08-E	320004060204	Circuit breaker, 20kW heat strip	4.0/5.0



#### Note:

Gree is committed to continuously improving its products to ensure the highest quality and reliability standards, and to meet local regulations and market requirements.

All features and specifications are subject to change without prior notice.

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