



Specification and Approval

Customer : _____
Description : Air Conditioner for Equipment (Through Wall Mounting)
Customer Part No. : _____ Rev.: _____
Delta Model No. : HEC0500BFA Rev : 00
Sample Date Code: _____
Sample Issue Date : DEC.12 2019

Please send one copy of this specification back after
you signed approval for production pre-arrangement

Approved by : _____

Date : _____

DELTA ELECTRONICS, INC.
252, SHANG YING ROAD, KUEI SAN
TAOYUAN CITY 333, TAIWAN

TEL : 886-(0)3-3591968
FAX : 886-(0)3-3591991

Part no. :

Delta model no. : HEC0500BFA

Table of content

Description.....	4
Packing & Shipping.....	4
Safety Notes.....	4
1. Product Instruction	8
1-1. General Description	8
1-2. Main Feature & Model Number.....	8
1-3. Dimension.....	10
1-4. Mounting Panel Cutout.....	11
1-5. Configuration & Maintenance	12
1-6. Thermal and Airflow	13
2 Electrical Specification	14
2-1. Indicator & Connector.....	14
2-1-1 Power Supply & Alarm Connector.....	14
2-2. Parametric Setup.....	15
2-3. System Default Setup.....	15
2-4. Self-Test.....	15
2-5. Alarm Logs & Fault Processing.....	16
3. Environmental Condition	17
3-1. Operating Temperature	17
3-2. Storage Temperature	17
3-3. Operation Humidity	17
3-4. Ingress Protection Rating.....	17
4. Reliability Table.....	17
5. Safety Certification	17
6. Accessory	18
7. Installation Notice	18

Part no. :

Delta model no. : HEC0500BFA

8. Warranty	18
9. Reclaim	21
10. Versions	21

Part no. :

Delta model no. : HEC0500BFA

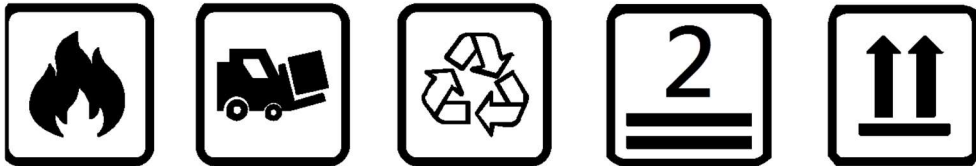
Description

This document is an installation and the characteristics of Delta HECX1P series. Before installing the unit, please read this manual thoroughly, and following the instructions contained in it. The document is the exclusive property of Delta Electronics, Inc. it should not be distributed, reproduced, or any other format without prior permission of Delta. Specifications are subject to change without notice.

Packing & Shipping

During handling or transport, air conditioner must be upward placed, “**NO**” inverted, flat, excessive tilt and collision. Air conditioner is a precision instrument, it should be handled or transported with care, do not stand on the box, or place heavy objects on it. Please pay attention to the following icons on the package.

If air conditioner is toppled, over slanted or dropped unfortunately, please follow below steps: a. stand for 12 hours to ensure refrigerant pressure stability, b. power on and execute self-test to make sure no alarm happened, c. air conditioner keeps 1 hour operating and make sure there is no abnormal acoustic noise.



Safety Notes

Please read the safety notes carefully before installing air conditioning unit and be sure to install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation.

Meaning of WARNING and CAUTION notices:

⚠ Warning:

Failure to follow these instructions properly may result in personal injury or loss life.

⚠ Caution:

Failure to observe these instructions properly may result in property damage or personal injury, which may be serious depending on the circumstance.

⚠ Warning:

1. Installation work and electrical wiring must be done by qualified person(s) in accordance with all applicable

Part no. :

Delta model no. : HEC0500BFA

codes, standards and national wiring regulations.

2. Use this unit only in the manner intended by the manufacturer. If you have questions, please contact the manufacturer.
3. Install the air conditioner in accordance with the instructions in this installation manual. Improper installation may result in water leakage, electric shocks or fire.
4. Make sure that all wiring is secured, the specified wires are used, and there is no strain on the terminal connections or wires.
5. If refrigerant gas leaks during installation, ventilate the area immediately. Do not directly touch refrigerant that has leaked from refrigerant pipes or other areas, as there is a danger of frostbite.
6. Before serving or cleaning unit, switch power off and disconnect power supply.
7. When cutting or drilling into wall or ceiling, do not damage electrical wiring or hidden utilities.
8. Be sure to use only the specified accessories and parts for installation work.
9. Protective earth connection: The enclosure must be earthed at the protective earth terminal. Use 2.5 mm² (14 AWG) wire and use spring washer to avoid loosening.
10. The air conditioner shall be not accessible to the general public.
11. The installation must contain a device to disconnect all poles of the air conditioner from the power supply. The contact distance in all poles must be 3 mm minimum.
12. To reduce the risk of electrical shock. Means for disconnection must be incorporated in the fixed wiring in accordance with the wiring rules.
13. This appliance is intended to be used by expert or trained users in shops, in light industry and on farms, or for commercial use by lay persons”.

 Caution :

1. Install the air conditioner on a wall/ door strong enough to withstand the weight of the unit.
2. Do not block air inlets or exits.
3. Do not install the air conditioner at any place where there is a danger or flammable gas leakage.
4. Arrange the drain to ensure complete drainage.
5. To avoid injury, do not touch the air inlet or aluminum fins of unit.

Part no. :

Delta model no. : HEC0500BFA

6. Watch your steps at the time of fin cleaning or air conditioner inspection.
7. Do not topple the air conditioner while moving or storage.
8. The hole in the bottom of the air conditioner should be connected to a sealed container through a drainpipe.
9. The appliance is not to be used by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction.
10. Children being supervised not to play with the appliance.

Part no. :

Delta model no. : HEC0500BFA

Specification for Approval

Customer :

Description : Air conditioner for Equipment with 500 W Rated Cooling Capacity (Through Wall Mounting)

Customer P/N :

Rev. :

Delta model no. : HEC0500BFA

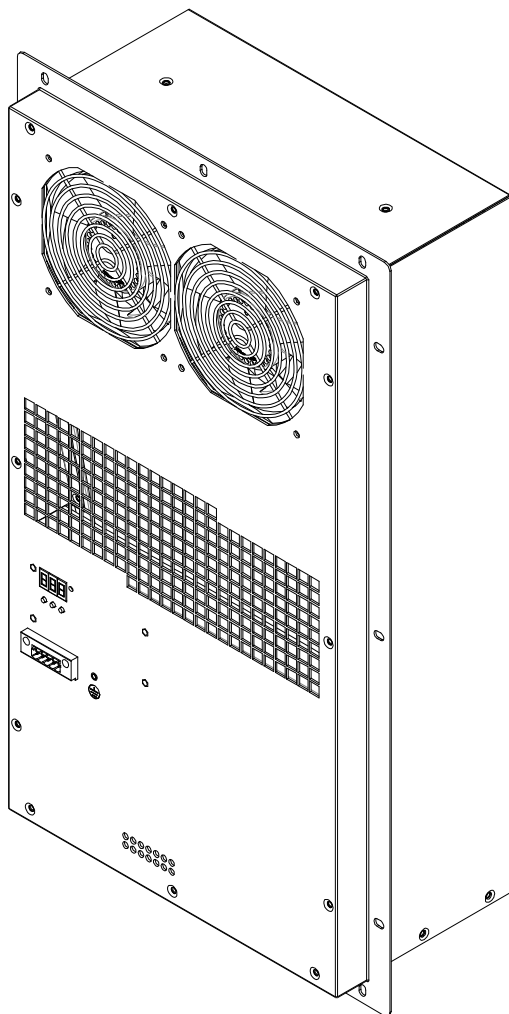
Rev. :

Sample revision. :

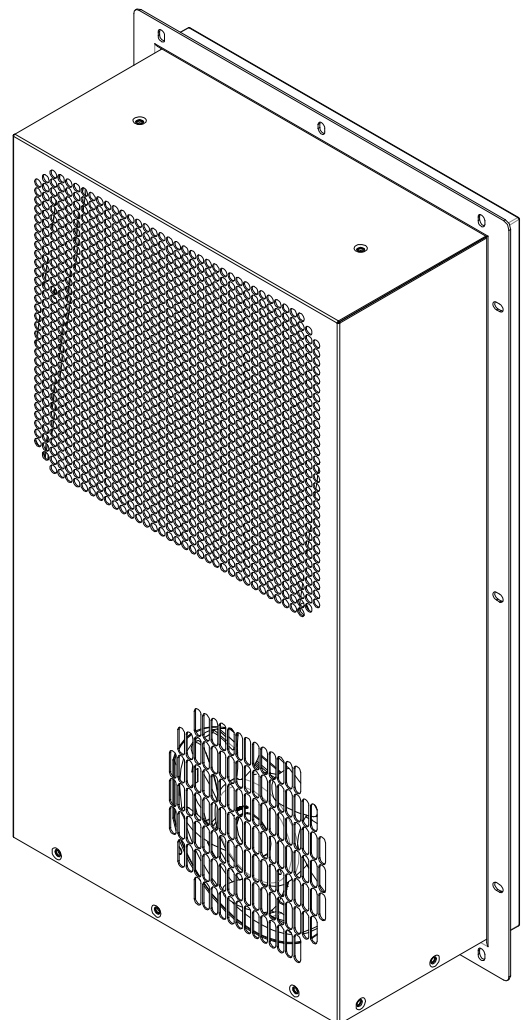
Date Code :

Sample issue date :

Quantity : one sets



INTERNAL



EXTERNAL

Part no. :

Delta model no. : HEC0500BFA

1. Product Instruction

1-1. General Description

HEC0500BFA is an AC air conditioner with 230V AC power input, it is designed for IP55 sealed outdoor telecom cabinet to provide stable and optimum internal conditions for equipment and avoid hotspot inside the cabinet.

HEC X1 BF A - XXX

(1) (2) (3)(4) (5)

No	Item	Digit	Specification
(1)	Product Message	HEC	Compressor Air Conditioner
(2)	Cooling Capacity	X1	X1=0500
(3)	Operation Voltage	BF	230V AC for door
(4)	Version	A	N/A
(5)	Customer ID	XXX	N/A

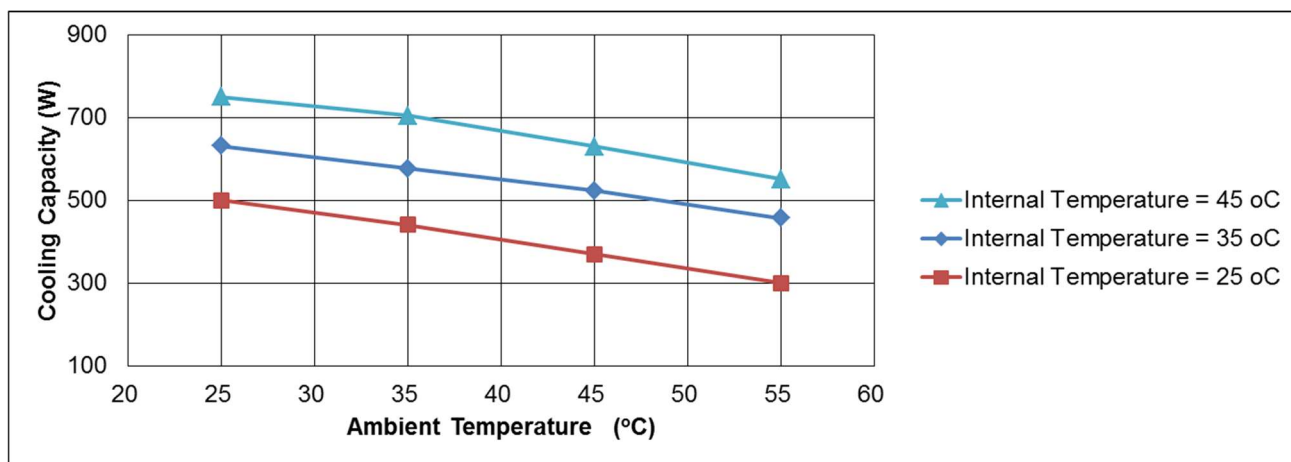
1-2. Main Feature & Model Number

Dimensions, Weight & Mounting method		
Dimension (H x W x D) (without flange)	mm (inch)	550 x 295 x 160 (21.7 x 11.6 x 6.3)
Application		Outdoor
Weight	Kg (lbs)	16.0 (35.3)
Mounting Method		Door/Side
Color (optional)		RAL7035
Environmental Protection & Performance		
Operating Temperature Range	°C (°F)	-10 to +55 (+14 to +131)
Operating Humidity		External : 0~100% RH Internal: 0~80% RH
Storage Temperature	°C (°F)	-40 to +70 (-40 to +158)
Storage Relative Humidity	RH	5~95%
Refrigerant		R134a, 250 g±10 g
Protection for Dust ,Wind and Water (External)	IEC 60529 /GR487	IP55 / GR487
Noise (1m)	dB-A	61
Operating Status	N/A	LED Indicator / Display Board
Cooling Capacity & Operational Data		
Rated Cooling Capacity at L35/L35	W (Btu/hr)	550 (1870)/50 Hz, 600 (2000)/60 Hz
Rated Cooling Power	W	268
Rated Internal Airflow (L35/L35)	m ³ /h (CFM)	230 (135)
Rated External Airflow (L35/L35)	m ³ /h (CFM)	150 (90)

Part no. :

Delta model no. : HEC0500BFA

Power & Range		
Input Voltage	VAC / Phase / Frequency	230 / 1 / 50 or 60
Locked Rotor Current	A	4.1
Alarm	N/A	Dry Contact Output
Key Components		
Controller		Built-in Smart Controller
Fans		Delta High Efficiency Blowers
Compressor		Rotary

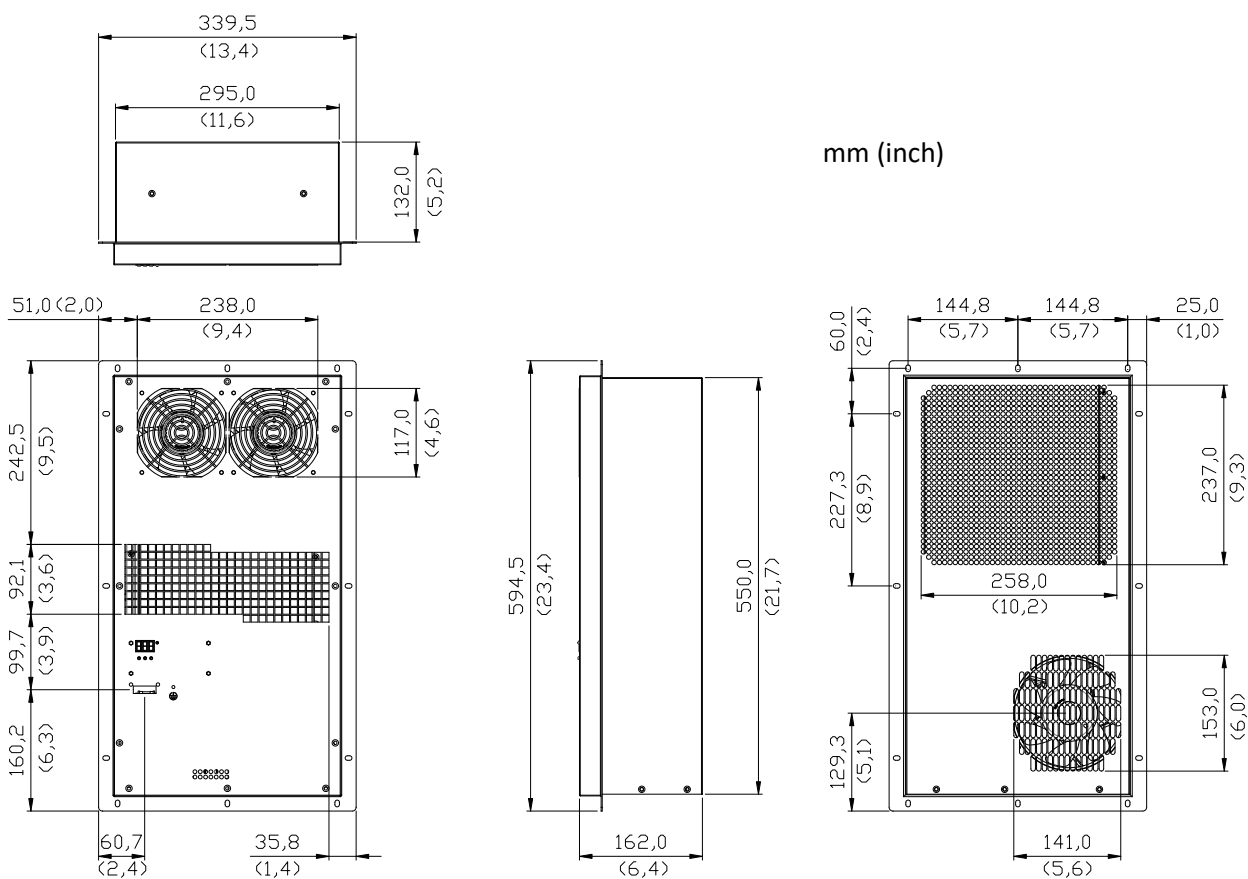


Cooling Capacity with Varied Temperature

Part no. :

Delta model no. : HEC0500BFA

1-3. Dimension

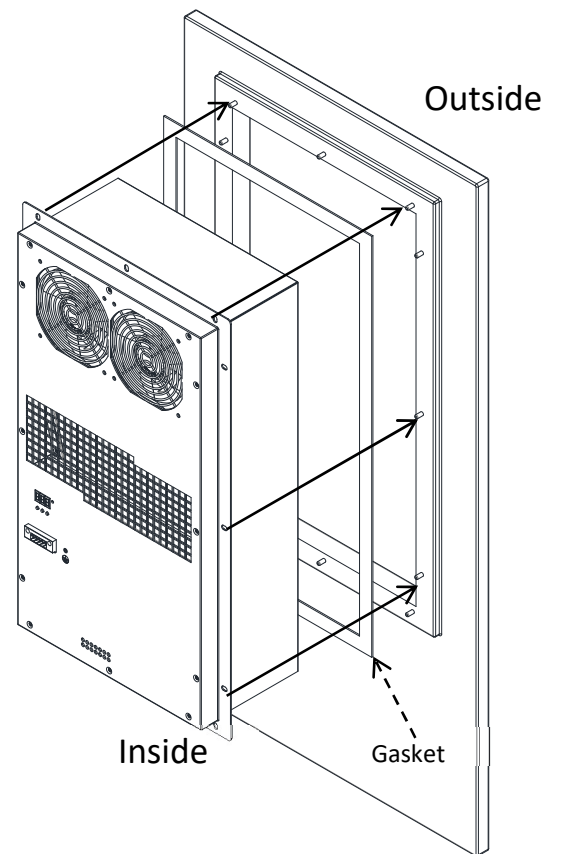
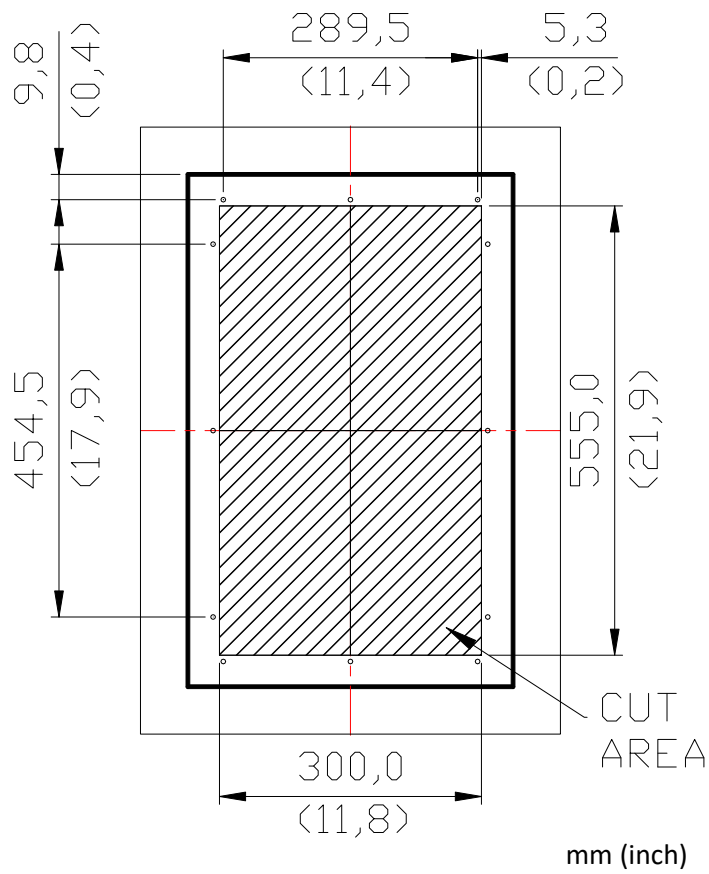


- (1) Material: Case SGCC Sheet.
- (2) Finish: Powder coating 75~120 uM, Color RAL 7035.
- (3) Dimensional Tolerance: ± 1 mm.

Part no. :

Delta model no. : HEC0500BFA

1-4. Mounting Panel Cutout



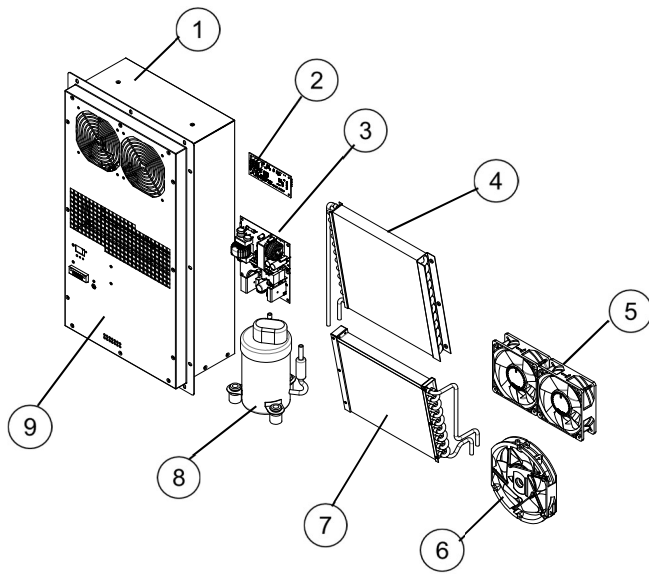
Part no. :

Delta model no. : HEC0500BFA

1-5. Configuration & Maintenance

Make sure the air conditioner surface sealed with mounting flange to avoid water penetrates into shelter through mounting interface. It is suggested to use gaskets sticking on the mounting flange and seal the gap between flange and cabinet with silicone gel during installation. There should be **NO** any gap surround gaskets to avoid water penetrates into enclosure.

The air conditioner is composed as the following key components: they are chassis, cover, controller, heat exchanger, blowers and compressor etc. It is “**not**” recommended that the user replace the compressor, evaporator, and the condenser by themselves; it may damage the system and getting injured.



NO.	Q'TY	DESCRIPTION
1	1	Case Chassis
2	1	Control Board
3	1	Power Board
4	1	Condenser
5	1	Internal Fan
6	1	External Fan
7	1	Evaporator
8	1	Compressor
9	1	Case Cover

In order to assure the air conditioner running at optimal condition, the condenser should be cleaned once annually at least; user can clean the condenser with water directly. The external side fan blade can also be cleaned with normal pressure water if there is dust accumulation. Please do not use strong water jet to impact the center of fan and the surface of condenser.

The bottom hole of the air conditioner should be connected to a sealed container through a drainpipe, please clear drain holes when the maintenance. Please also notice that:

1. Check wires are connected correctly, and the insulation is not cracking or broken.
2. Use Self-test to check the unit running correctly or not. And the supplied air of internal side should be as cooled air.
3. Do not wipe the product with organic solvent, volatile substances like toluene or gasoline, it will destroy the powder-coated surface.
4. Turn off the power before maintaining.
5. Please turn off power and remove dry contact connector while non-operating for a long time.

Part no. :

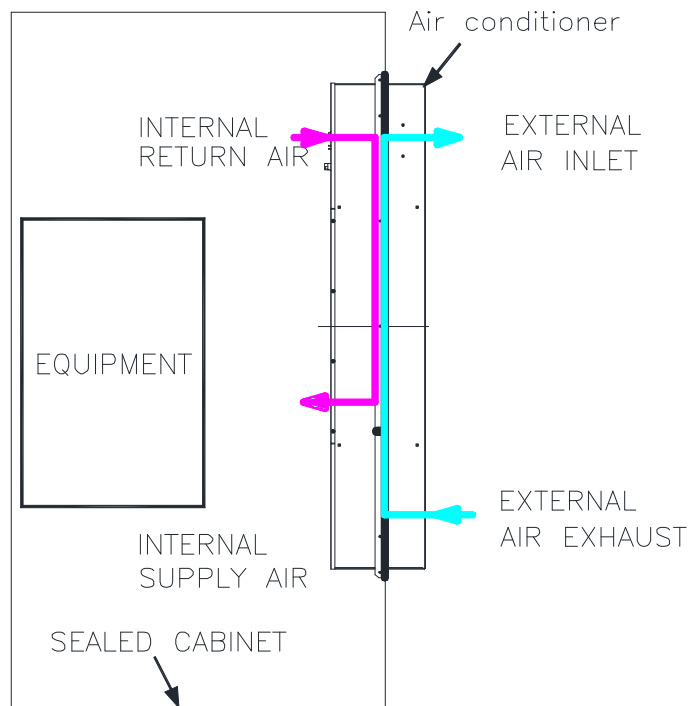
Delta model no. : HEC0500BFA

6. If any abnormal acoustic noise from air conditioner happened, please turn off the product and contact with customer services.
7. The refrigerant is environmental friendly product of R134a. Little refrigerant leakage (< 5 g/ year) is allowed for application. If refrigerant leakage seriously, please turn off the power and wait for at least 2 hours to make sure the refrigerant fully exhaust. Please also contact the services to replace spare parts.
8. The compressor electrical protecting cover is sealed with silicon for IP55 requirement. Please do not dismantle the sealed cover or will lose the quality assurance of the compressor.

1-6. Thermal and Airflow

The internal and external air flow circulation is shown as the figure. Through separated mechanism design, internal and external air flow won't be mixed since the waste heat can be dissipated from the cabinet to the ambience. Internal temperature sensor is placed at return air stream to provide reliable temperature measurement and safety of operation.

The waste heat generated from the internal equipment will be absorbed by the refrigerant through the evaporator and dissipate to the ambience by the condenser of external side.



Part no. :

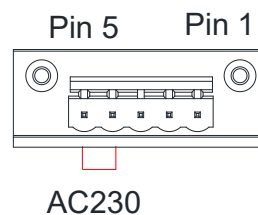
Delta model no. : HEC0500BFA

2 Electrical Specification

2-1. Indicator & Connector

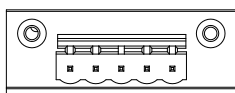
2-1-1 Power Supply & Alarm Connector

Pin	Description	Cable wire size
1	Alarm	N.O (24AWG)
2	Alarm	COM.(24AWG)
3	N/A	N/A
4	N	1.5 mm ² (18AWG)
5	L	1.5 mm ² (18AWG)

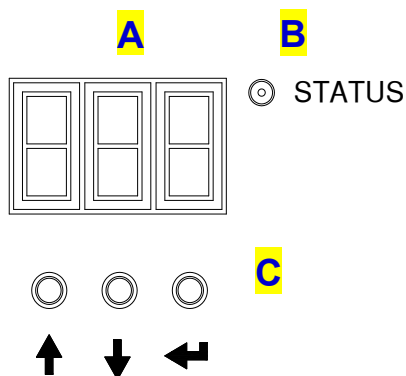


- System alarm default setup
 - Specification: Contact rating: 24 Vdc, 1A
 - Normal: PIN 1 and PIN 2 dry contact output open
 - Any alarms happening: PIN 1 and PIN 2 dry contact output close

- Case Grounding:



- Panel operation



	7-Segment Display
	Status LED
	Up
	Down
	Parametric Setup

- **A**: Display:

Part no. :

Delta model no. : HEC0500BFA

It will show the temperature inside the cabinet and system parametric setup.

- **B**: LED indicator:

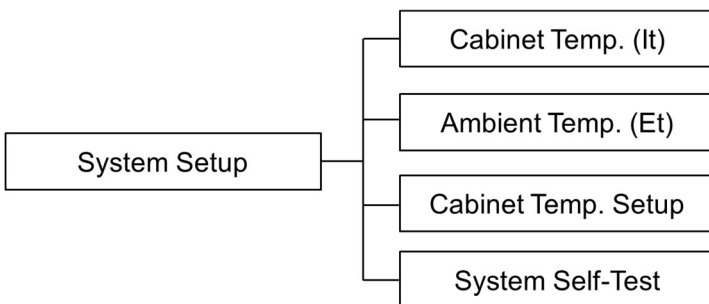
Power:

- ❖ When the system power on and the LED will light in green.
- ❖ If any alarm happens, according to flashing times of red led to check the root cause.
- ❖ If the system gets into self-test mode and the LED will flash in green.

- **C**: Press Buttons:

- ❖ ↑: UP or increase
- ❖ ↓: DOWN or decrease
- ❖ **SET**: Parametric setup

2-2. Parametric Setup



2-3. System Default Setup

System Parameter	Default	Range
Target temperature	35 °C	25 °C - 40 °C
Photo Coupler Normal Status	open	Close/Open

2-4. Self-Test

1. Press the SET button into parametric setup mode.
2. Press UP button to choose CLR and then press SET button to execute auto self-test.
3. If the system gets into self-test mode and LED will flash in green.
4. Auto self-test running period about eighty seconds exclude compressors three minutes protection.

Part no. :

Delta model no. : HEC0500BFA

5. The test process including EEPROM, NTC sensor, inner-fan, outer-fan, compressor running correctly.
6. Recognizing that the implementation process without generating alarm or fault. If any alarm happens, according to flashing times of power led to check the root cause.

2-5. Alarm Logs & Fault Processing

Alarm Items

Item 项次	Alarm Item 告警原因	Alarm LED (Flashing Times) 闪烁次数
1	Compressor Startup Fail	9
2	Fan Low Voltage Protection	8
3	EVA Low Temp. Protection	7
4	Overload Protection	6
5	Outdoor Temp. Sensor Fail	5
6	Indoor Over Temp. Protection	4
7	Indoor and EVA Temp. Sensor	3
8	Outdoor Fan Protection	2
9	Indoor Fan Protection	1

Fault Analysis and Processing

Fault State	Analysis of the Reasons	Solutions
Power on, and the cabinet temperature is too high but the air conditioner is not working	<ol style="list-style-type: none">1. Power failure or no power.2. The target temperature is higher than inside temperature.3. System failure.	<ol style="list-style-type: none">1. Check the power supply and the electric circuit.2. Re-set the target temperature according to the system requirement.3. Please contact the service department.
The air conditioner is running but the cabinet temperature is still high, no obvious cooling effect.	<ol style="list-style-type: none">1. The air conditioner capacity is not match the load of the system.2. The ambient temperature is too high.3. Low efficiency of the condenser.4. Other system failure	<ol style="list-style-type: none">1. Check the heating load of the system.2. Ensure the air conditioner operates in correct temperature range.3. Clean the condenser.4. Please contact the service department.

Part no. :

Delta model no. : HEC0500BFA

The air conditioner stop operating, and there is no alarm signal.	1. The inside temperature is lower than the target temperature. 2. Other system failure.	1. Re-set the target temperature according to the system requirement. 2. Please contact the service department.
---	---	--

3. Environmental Condition

3-1. Operating Temperature

-10 °C ~ +55 °C (14 °F ~ 131 °F)

3-2. Storage Temperature

-40 °C ~ +70 °C (-40 °F ~ 158 °F)

3-3. Operation Humidity

External air loop: 0 ~ 100 % RH

Internal air loop: 0 ~ 80 % RH, non-condensing

3-4. Ingress Protection Rating

IP55 (IEC60529) on external side

GR487 on external side

4. Reliability Table

Test item	Condition
High temperature	IEC 60068-2-2
Low temperature	IEC 60068-2-1
High temp. / High humidity	IEC 60068-2-3
Temperature cycle	IEC 60068-2-14 test Nb
Vibration	ETSI 300 019-1-4 CLASS 4.1
Ingress protection (external side)	IEC 60529 IP55 / GR487
Salt fog test (external side)	IEC 60068-2-11 severity 4 , 6cycles
Package bump	IEC 60068-2-29

5. Safety Certification

TUV, CE, CCC, UL

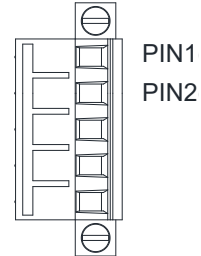
Part no. :

Delta model no. : HEC0500BFA

6. Accessory

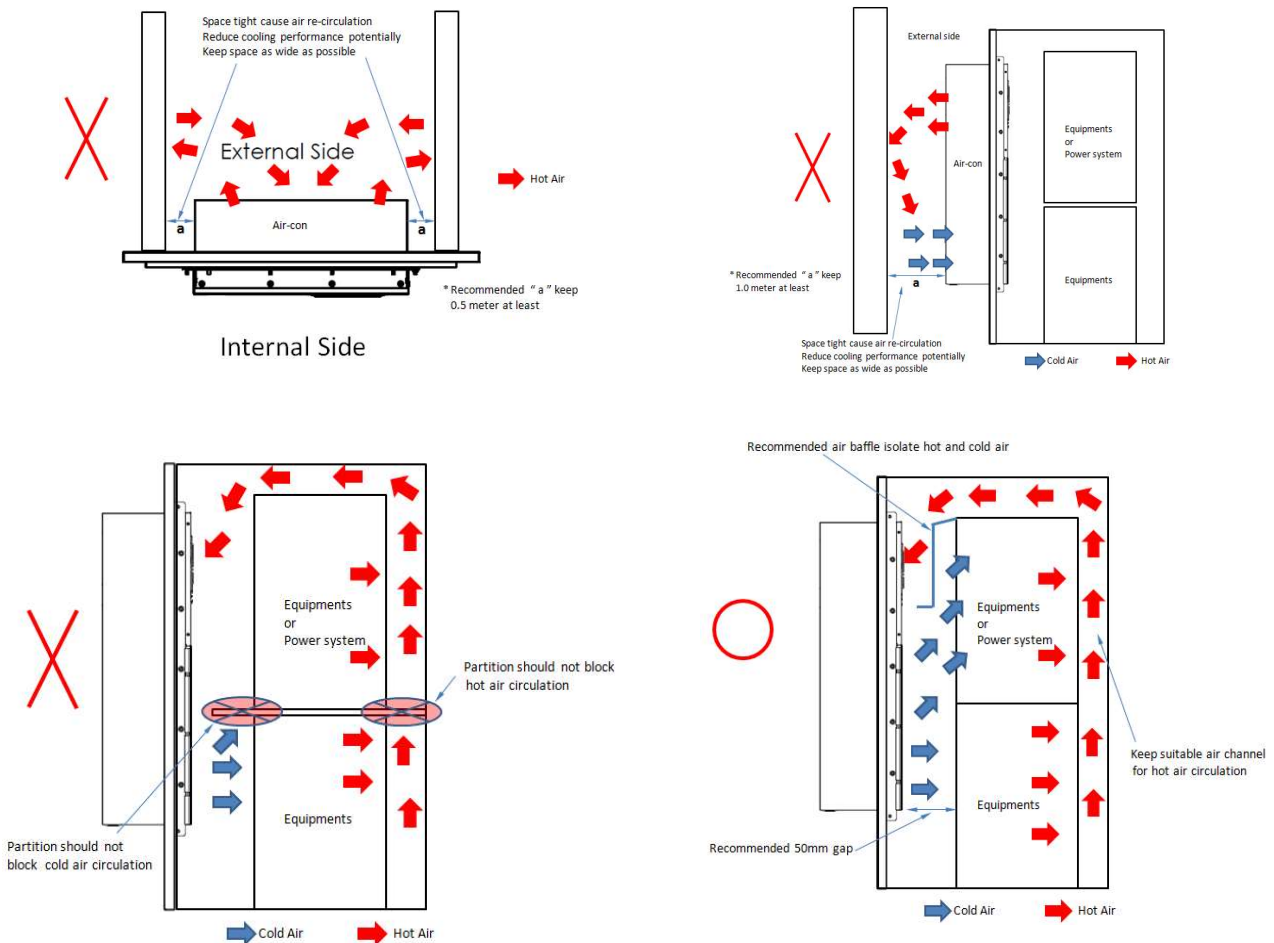
➤ Power and Alarm Cable

Pin	Description	Cable wire size
1	Alarm	N.O (24AWG)
2	Alarm	COM.(24AWG)
3	N/A	N/A
4	N	1.5 mm ² (18AWG)
5	L	1.5 mm ² (18AWG)



7. Installation Notice

Check the surrounding obstacles to make sure the product get enough space for air circulate.



8. Warranty

Delta Electronics, Inc. Warranty for Cabinet Thermal Solutions Products

Delta Electronics, Inc warrants that all Heat Exchangers, Air Conditioners, Heaters, Thermoelectric

Part no. :

Delta model no. : HEC0500BFA

Coolers and related products and accessories within its Cabinet Thermal Solutions product family and manufactured by Delta Electronics, Inc., herein referred to as (“products”), will be free from defects in material and workmanship for a period of one (1) year from the date of shipment by Delta Electronics, Inc. This warranty covers repair or replacement of product at the sole discretion of Delta Electronics, Inc. and is subject to the following Conditions and Exclusions:

A. Conditions.

- All products must be installed and operated according to Delta product Specification(s) and product Instruction/User Manual(s):
- Maximum voltage variation is no greater than normal operation and instruction in Delta product Specification(s) and product Instruction/User Manual(s), with avoidance to power line disturbances of any kind.
- Application is not to exceed minimum and maximum stated operation temperatures and humidity range as indicated in the Delta product Specification(s) and product Instruction/User Manual(s).
- Filters (if applicable) must be cleaned regularly.
- Products and any parts thereof must not be modified, unless prior written authorization is received from Delta Electronics, Inc.
- All products must be installed and grounded in accordance with all relevant electrical and safety codes, as well as the National Electric Code and OSHA rules and regulations.
- All products must be installed in a stationery application, free of vibration and shock.
- A violation of any one of these conditions shall render the warranty hereunder void and of no effect.

B. Exclusions.

This warranty does not cover the following:

- Applications where products are being misapplied. This includes inappropriate selection of products for the environment and conditions in which it is to be used.
- Damages caused by shipping carrier or any other accident after products have left Delta Electronics, Inc. manufacturing facility. Shipping claims are the responsibility of the customer and are to be completed in a timely manner.
- Reimbursement of labor for installation or removal of any warrantied products, or for parts and labor resulting from repairs performed by any other source besides Delta Electronics, Inc.

This is the complete warranty and is in lieu of any other warranty expressed or implied, including

Part no. :

Delta model no. : HEC0500BFA

but not limited to any implied warranty of merchantability or fitness for a particular purpose. Delta Electronics, Inc. will in no way be liable for incidental or consequential damage whatsoever or for any other claims by the customer for damages in connection with Delta Electronics Inc. products, even if advised in advance of the possibility of such damage.

Return Procedure

All returns require a Return Material Authorization number (RMA #), regardless of reason for return, whether it be for warranty or out of warranty repair. Returns without an RMA # will be refused by Delta Electronics, Inc. Approval for return requests are at the sole discretion of Delta Electronics, Inc.

Buyer should provide the following information at the time of RMA request:

1. Complete Model Number, Serial Number and description of damaged unit requested to be returned.
2. Original Buyer Purchase Order number and date product was received by Buyer.
3. Quantity to be returned and a brief description of failure for each unit, if different.

All returns to Delta Electronics, Inc must be securely packed, using original cartons if possible. All returns must have the RMA number visible on the outside of the carton. Delta Electronics, Inc. is not responsible for material damaged in transit.

Shipping cost for all non-warranty repairs is the responsibility of the sender and must be shipped prepaid. Shipping costs for all warranty related repairs will be covered by Delta Electronics, Inc. provided the products are returned using a Delta Electronics, Inc approved carrier. If after diagnosis, products determined by Delta Electronics, Inc. are not covered under warranty, Buyer will be responsible for all shipping charges and will be billed accordingly.

LIMITATION OF LIABILITY

DELTA ELECTRONICS, INC. WILL NOT BE LIABLE UNDER ANY CIRCUMSTANCES FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES, INCLUDING WITHOUT LIMITATION ANY LOST PROFITS OR LABOR COSTS, ARISING FROM THE SALE, USE OR INSTALLATION OF THE GOODS, FROM THE PRODUCTS BEING INCORPORATED INTO OR BECOMING A COMPONENT OF ANOTHER PRODUCT, FROM ANY BREACH OF THIS AGREEMENT OR FROM ANY OTHER CAUSE WHATSOEVER, WHETHER BASED ON WARRANTY (EXPRESSED OR IMPLIED) OR OTHERWISE BASED ON CONTRACT, OR ON TORT OR OTHER THEORY OF LIABILITY, AND REGARDLESS OF ANY ADVICE OR REPRESENTATIONS THAT MAY HAVE BEEN RENDERED BY DELTA ELECTRONICS, INC. CONCERNING THE SALE, USE OR INSTALLATION

Part no. :

Delta model no. : HEC0500BFA

OF THE PRODUCTS.

9. Reclaim



At the end of the unit working life, the produce must not be disposed of as urban waste. It must be taken to a special local authority differentiated waste collection center or to a dealer providing this service.

10. Versions

REV.	Description	Owner	Date
00	Issue SPEC	VIC	2019.12.12