



## Specification For Approval

Customer : \_\_\_\_\_  
Description : AC 230V Heater 700W  
Customer Part No. : \_\_\_\_\_ Rev. : \_\_\_\_\_  
Delta Model No. : HEH070BA Rev : 04  
Sample Issue No. : \_\_\_\_\_  
Sample Issue Date : AUG.28 2018

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

Approved by : \_\_\_\_\_

Date : \_\_\_\_\_

Delta Electronics, Inc.  
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\*\*\* SAMPLE HISTORY\*\*\*

CUSTOMER :  
 CUSTOMER P/N :  
 DELTA MODEL : HEH070BA

REV.	DESCRIPTION	DRAWN	CHECKED			APPROVED	ISSUE DATE
			ME	EE	CE		
00	ISSUE SPEC	李武奇 05/12'15	李武奇 05/12'15	涂雅森 05/12'15	-----	陳英琦 05/12'15	05/12'15
01	1.Modify Rated Voltage 2.Add section 1-5. 3.Add safety mark	李武奇 02/19'16	李武奇 02/19'16	賴世育 02/19'16	-----	楊家瑋02/19'16	02/19'16
02	Modify section 1-2 inrush current to start current.	李明遠 12/22'16	李明遠 12/22'16	賴世育 12/22'16	-----	楊家瑋12/22'16	12/22'16
03	Modify start current	李武奇 12/08'17	李武奇 12/08'17	涂雅森 12/08'17	-----	陳加偉 12/08'17	12/08'17
04	Add section1-2 inrush current and 2-2 waveform table.	徐振凱 08/28'18	李武奇 08/28'18	涂雅森 08/28'18	-----	陳李龍 08/28'18	08/28'18

## Table of content

1. Description .....	2
1-1. General description .....	2
1-2. Main feature & Model number .....	2
1-3. Dimension.....	3
1-4. Airflow baffle .....	3
1-5. Mounting orientation .....	4
1-5-1 Vertical mounting .....	4
1-5-2 Horizontal mounting.....	4
2. Electrical specification.....	5
2-1. Electrical connection.....	5
2-2. Startup average current and inrush current .....	5
3. Characteristic Curve .....	6
3-1. Heating capacity V.S. Ambient temperature (at 230VAC).....	6
4. Environmental condition .....	6
4-1. Fan operating temperature .....	6
4-2. Storage temperature .....	6
4-3. Humidity.....	6
4-4. Ingress Protection rating .....	6
4-5. MTBF .....	6
5. Reliability table.....	7
6. Safety Certification .....	7
7. Power sourcing wire connection .....	7
8. Delta Electronics, Inc. Warranty for Cabinet Thermal Solutions Products.....	9

## Specification For Approval

Customer :

Description : AC 230V Heater 700W

Customer P/N :

rev. :

Delta model no. : HEH070BA

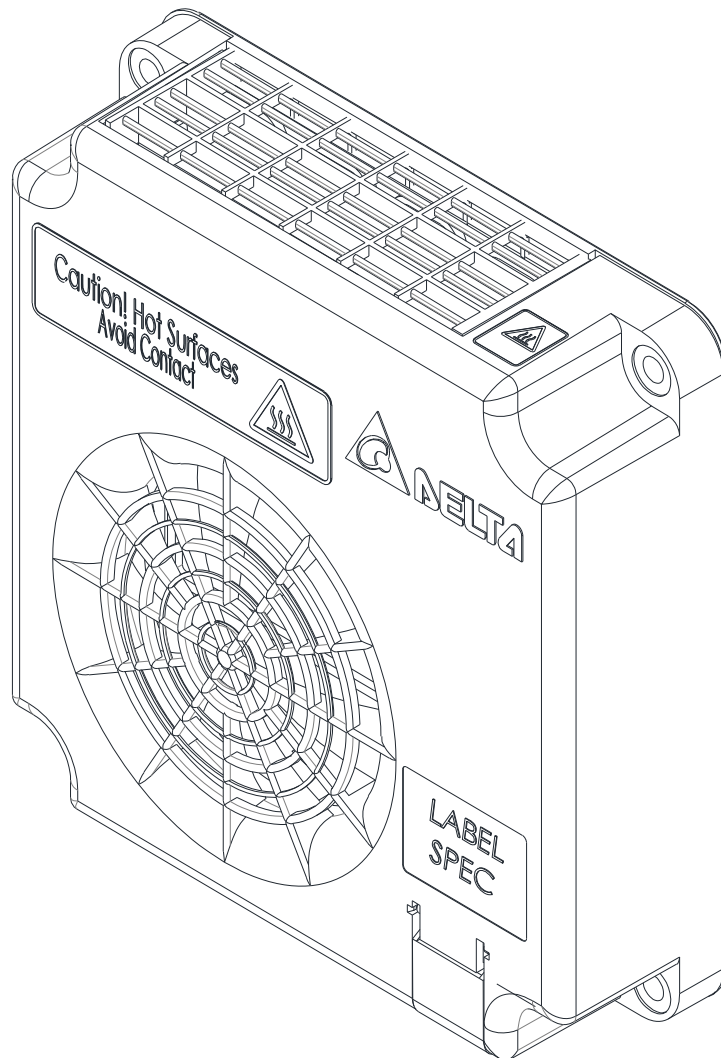
rev. : 04

Sample revision :

Issue no. :

Sample issue date : AUG.28 2018

Quantity : sets



Part no. :

Delta model no. : HEH070BA

## 1. Description

### 1-1. General description

The heater is designed for warming up air in the cabinet. It warms air to avoid equipment damaged at much lower temperature . The heater can be mounted on the wall of cabinet.

### 1-2. Main feature & Model number

Main feature	Unit	Model Number
		HEH070BA
Outline Dimension	Mm	150 L x 145 W x 45 D
Weight	Kg	1.5
Heating Capacity (*Note1)	W	700±10%
Rated Voltage	VAC	230
Rated Current	A	4.5 (at 230VAC)
Operating Voltage Range	VAC	230±15%
Operating Temperature range	°C	-40 ~ +40
Startup average current (*Note 2)	A	9.0(max.)
Inrush current (*Note3)	A	120 (max.)
Mounting Location	N/A	Wall

\*Note1 : The Heating capacity (W) is defined as  $W=V \cdot A$  at 20 °C

W : power consumption

V: Operating Voltage

A : Operating current

\*Note2 : The startup average current is peak current of PTC element, the duration is less than 3 sec. Please check the notice at section 2 – *Electrical specification*.

\*Note3 : Test condition are AC input 220Vac that is cold start at ambient temperature 25 °C. Please check the notice at section 2 – *Electrical specification*.

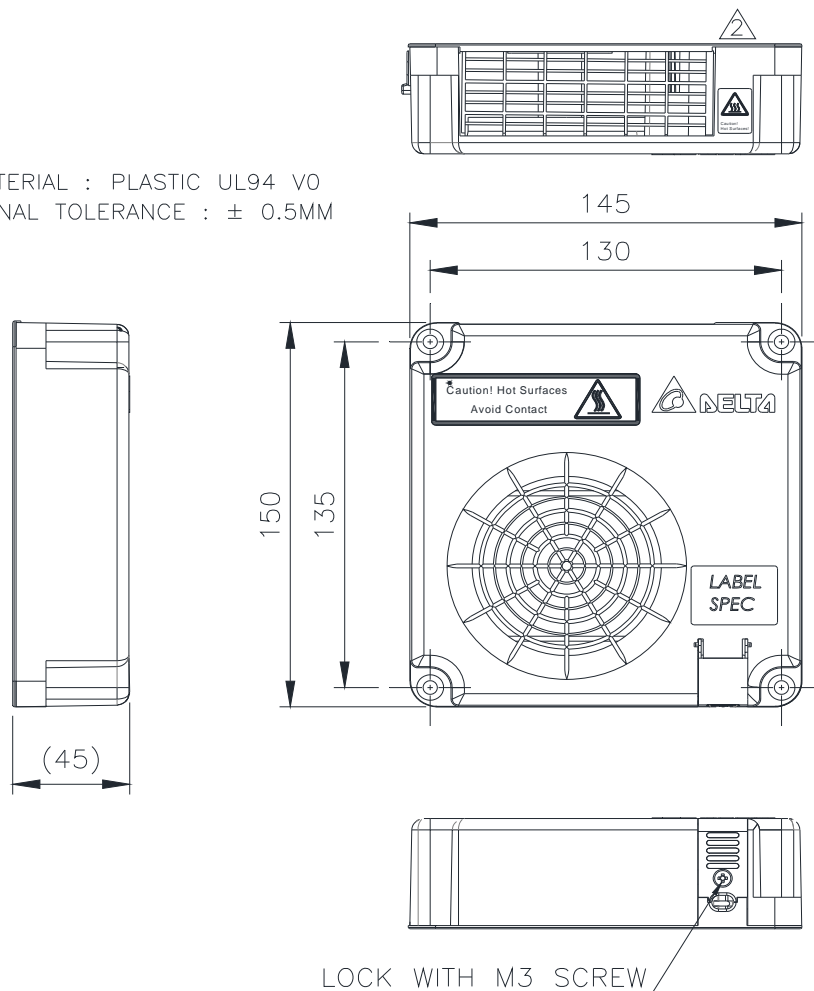
Part no. :

Delta model no. : HEH070BA

### 1-3. Dimension

NOTE :

- (1) CASE MATERIAL : PLASTIC UL94 V0
- (2) DIMENSIONAL TOLERANCE :  $\pm 0.5\text{MM}$

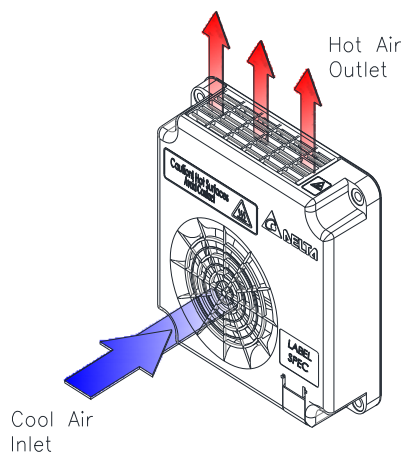


### 1-4. Airflow baffle

The cool air flow into the heater , and warm up by PTC heating element inside of case , then flow out into the system .

Part no. :

Delta model no. : HEH070BA



### 1-5. Mounting orientation

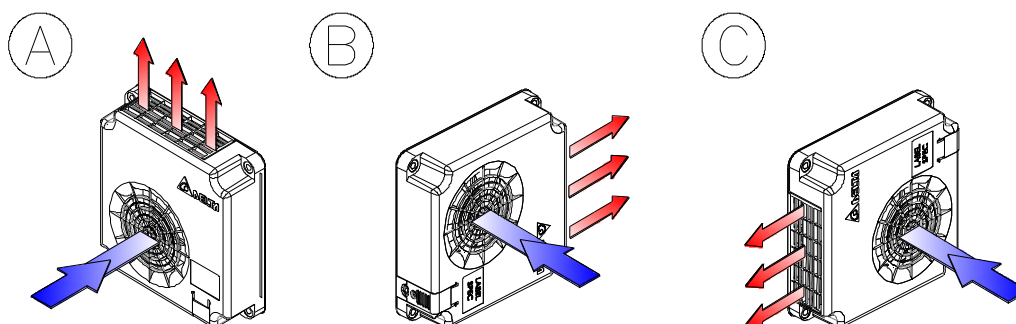
#### 1-5-1 Vertical mounting

Orientation condition:

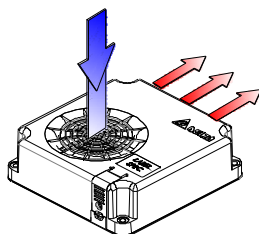
A: Hot air flow blow upward

B: Hot air flow blow backward

C: Hot air flow blow forward



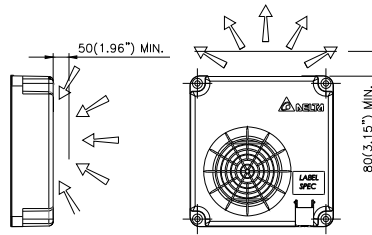
#### 1-5-2 Horizontal mounting



\*Note: \_\_\_\_\_

Part no. :

Delta model no. : HEH070BA



## 2. Electrical specification

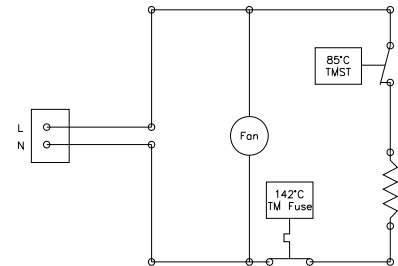
### 2-1. Electrical connection

Power input : Terminal block 2P with AC L & N input.

(Mate with AWG 12~28 300V 20A)

Thermostat : Cut-out temperature : 85°C

Temperature fuse : Cut-out temperature: 142°C



### 2-2. Startup average current and inrush current

The startup average and inrush current waveform define as bellow table. These test are all finished at ambient 20°C at 220Vac. Refer the table 2-1 as below;

Table 2-1. Tested waveform to startup average current and inrush current.

Item	Current and time	Wave form
Startup average current	<p>Maximum Current : 9A</p> <p>Max. Duration Time:3sec</p> <p>Measuring methods: The PTC element maximum transient current RMS value after power on.</p>	
Inrush current	<p>Maximum current: 120A</p> <p>Max. Duration Time: 380usec</p> <p>Measuring methods: Power on DC input then measure the peak current value.</p>	

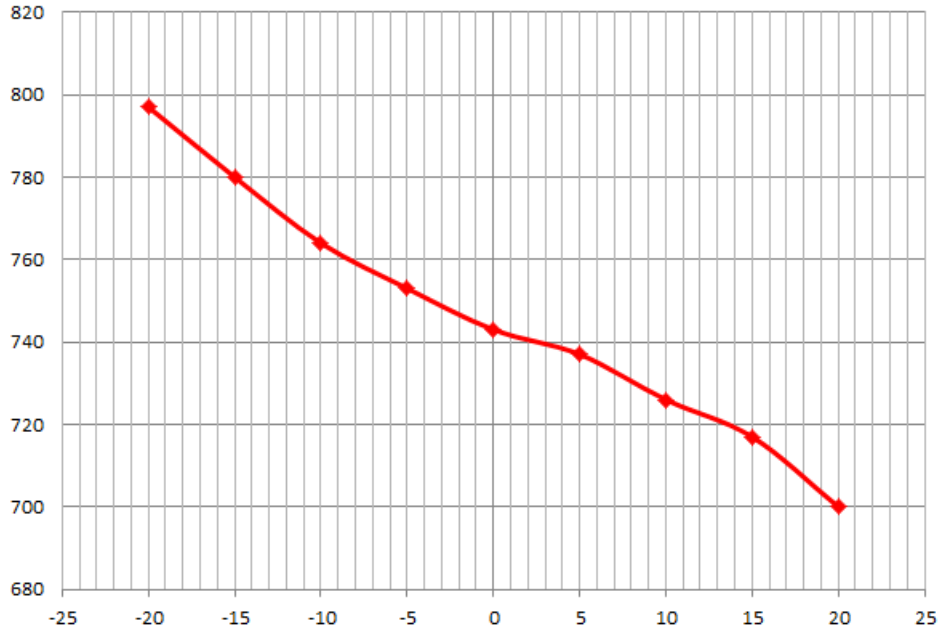


Part no. :

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### 3. Characteristic Curve

#### 3-1. Heating capacity V.S. Ambient temperature (at 230VAC)



### 4. Environmental condition

#### 4-1. Fan operating temperature

-40°C to +65°C

#### 4-2. Storage temperature

-40°C to +75°C

#### 4-3. Humidity

0 ~ 90% RH, non-condensing

#### 4-4. Ingress Protection rating

IP20 (IEC60529)

#### 4-5. MTBF

The L10 Fan life is expected to be at least 80,000 hours continuous operation at 40°C with 15 ~ 65% RH . @ label rated voltage.

Part no. :

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## 5. Reliability table

Test item	Condition
High temperature	IEC 60068-2-2
Low temperature	IEC 60068-2-1
High temp. /High humidity	IEC 60068-2-14 TEST Nb
Temperature cycle	IEC 60068-2-3
Vibration	ETSI 300 019-1-4 CLASS 4.1
Package bump	IEC 60068-2-29

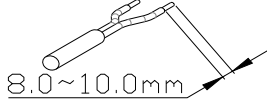
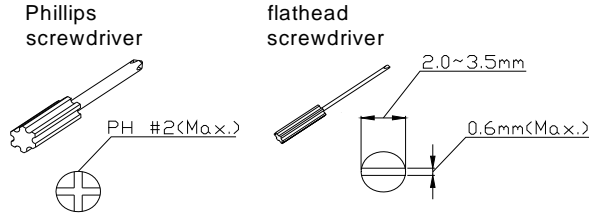
## 6. Safety Certification



## 7. Power sourcing wire connection

Before using HEH050BA-002 ,need to install power wire into HEH050BA-002 with 2P terminal block 2P.

Suggestion:

Wire type	AWG 16~20 300V 80°C with stripping 
Hand tool	Phillips screwdriver & flathead screwdriver 

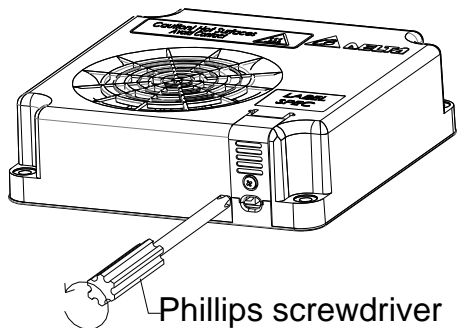
Part no. :

Delta model no. : HEH070BA

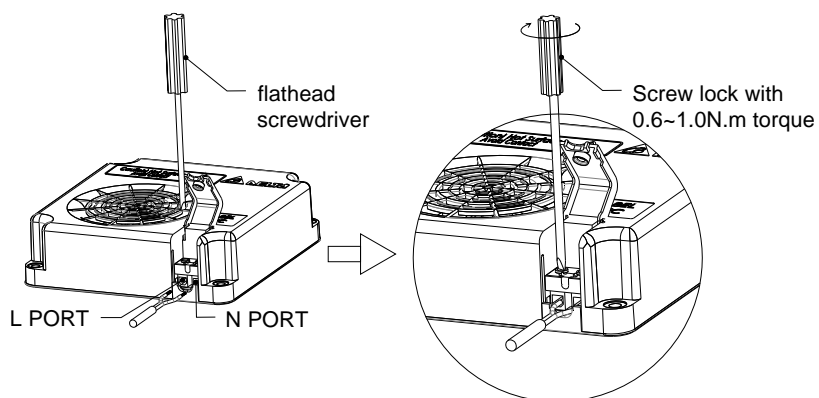
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Installation:

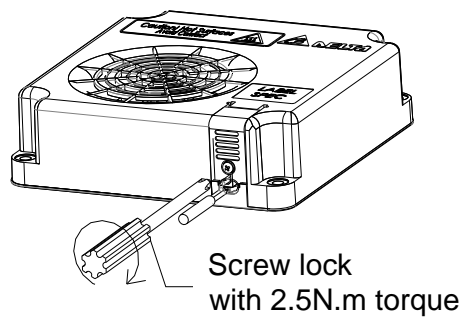
Step1: loose terminal block cover



Step2: install wire



Step3: Back to the original



Part no. :

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Delta model no. : HEH070BA  
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## **8. Delta Electronics, Inc. Warranty for Cabinet Thermal Solutions Products**

Delta Electronics, Inc warrants that HEATER 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.

Part no. :

-----  
Delta model no. : HEH070BA  
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- 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 warranted 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 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

Part no. :

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Delta model no. : HEH070BA  
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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 OF THE PRODUCTS.