



Specification For Approval

Customer : _____
Description : DC48V Heater 1000W
Customer Part No. : _____ Rev. : _____
Delta Model No. : HEH100PA Rev : 06
Sample Issue No. : _____
Sample Issue Date : Jan.15,2019

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

Approved by : _____

Date : _____

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Table of content

1. Description	2
1-1. General description.....	2
1-2. Main feature & Model number.....	2
1-3. Dimension.....	3
1-4. Configuration & Maintenance.....	4
1-5. Airflow baffle.....	4
2. Electrical specification.....	5
2-1 Connection and LED indicator.....	5
2-2 Standalone control mode	6
3. Environmental condition	6
3-1 Fan operating temperature	6
3-2 Storage temperature	6
3-3 Humidity	6
3-4 Ingress Protection rating	6
3-5 MTBF.....	6
4. Reliability table.....	6
5. Safety Certification	7
6. Power sourcing wire connection	7
7. Delta Electronics, Inc. Warranty for Cabinet Thermal Solutions Products.....	8

Specification For Approval

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Description : DC48V Heater 1000W

Customer P/N :

rev. :

Delta model no. : HEH100PA

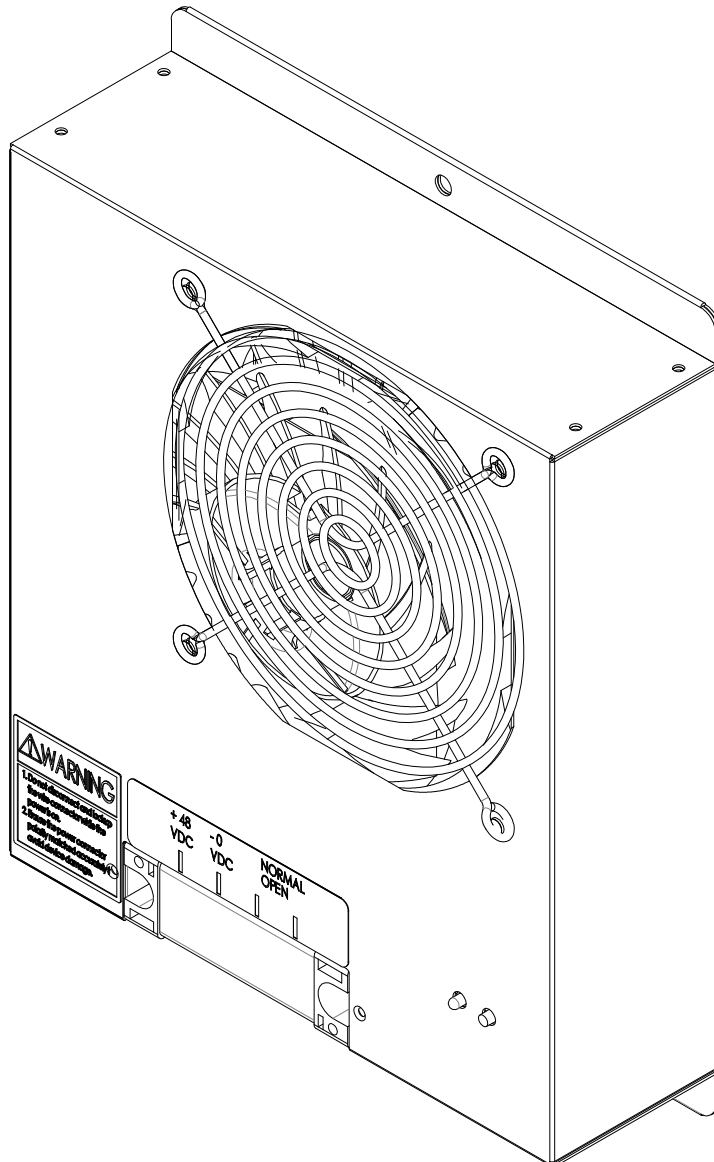
rev. : 06

Sample revision :

Issue no. :

Sample issue date :

Quantity : 1 set



Part no. :

Delta model no. : HEH100PA

1. Description

1-1. General description

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

1-2. Main feature & Model number

Main feature	Unit	Model Number
		HEH100PA
Outline Dimension	mm	240 H x 185 W x 57 D
Weight	kg	1.5
Heating Capacity (*Note1)	W	1000±10%
Rated Voltage	VDC	48
Operating Voltage Range	VDC	40-60
Opertaing status	N/A	LED indicator
Fan / Heater/ Sensor alarm	N/A	Dry contact

*Note1 : The Heating capacity (W) is defined as $W=V*A$ at 0 °C

W : power consumption

V: Operating Voltage

A : Operating current

Part no. :

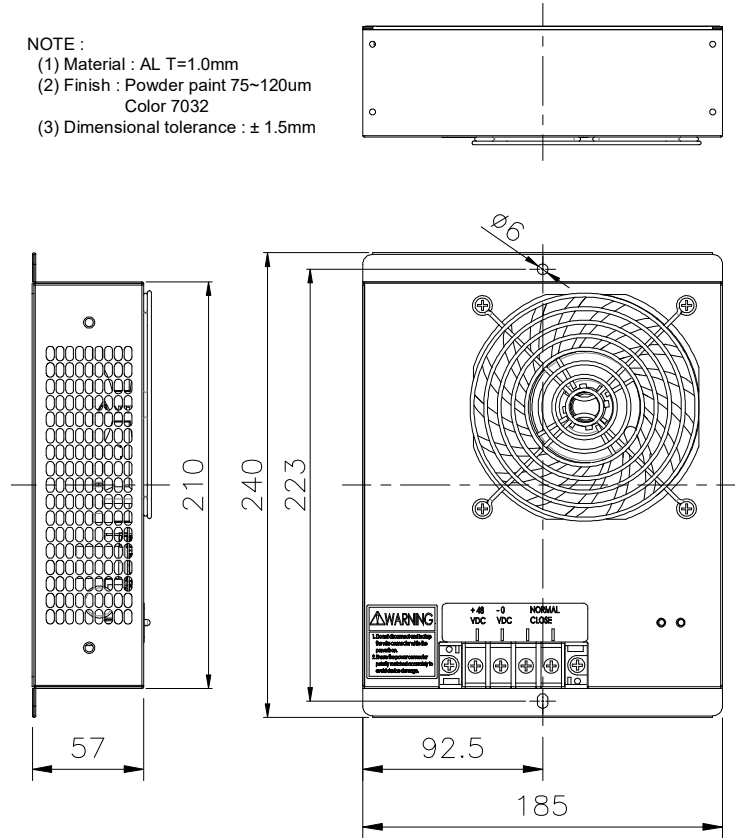
Delta model no. : HEH100PA

1-3. Dimension

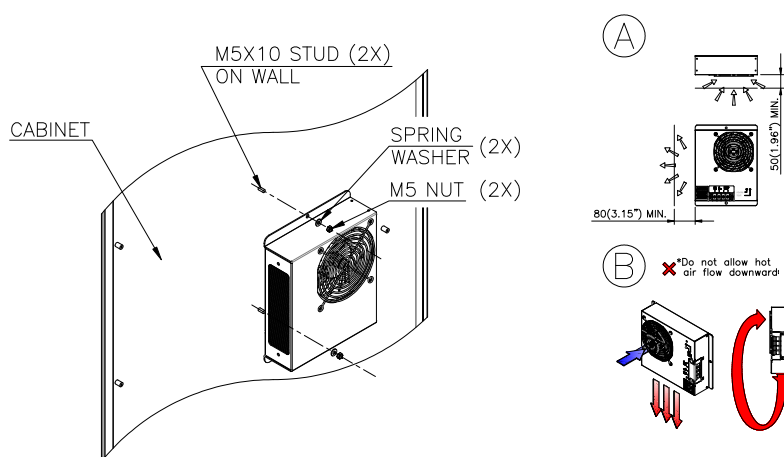
1-3-1 Drawing

NOTE :

- (1) Material : AL T=1.0mm
- (2) Finish : Powder paint 75~120um
Color 7032
- (3) Dimensional tolerance : $\pm 1.5\text{mm}$



1-3-2 Mounting



*Note A. Minimum gap for air inlet and exit is required to avoid the damage caused from blocked air passage.

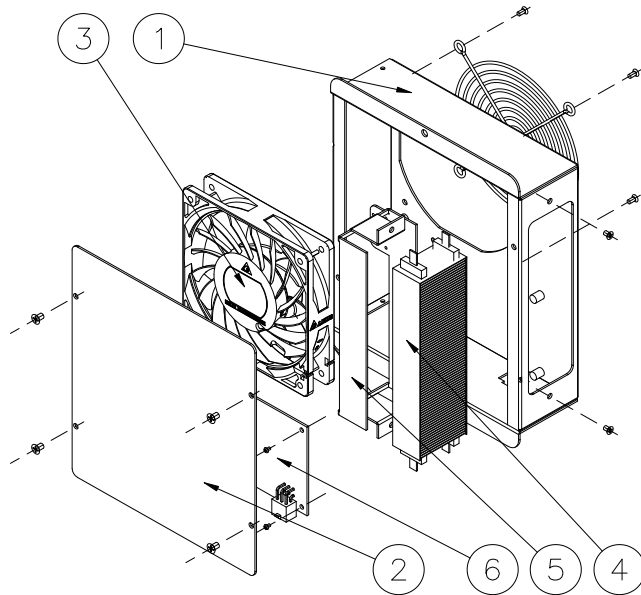
*Note B. Please avoid air flow short circulation otherwise it will shut down for high temperature self-protection.

Part no. :

Delta model no. : HEH100PA

1-4. Configuration & Maintenance

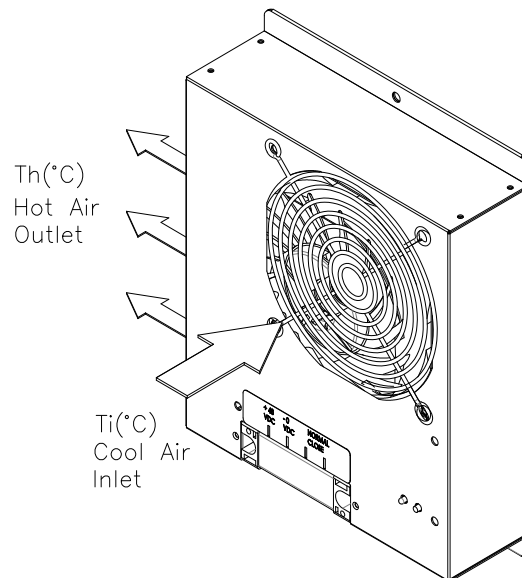
HEH100PA is composed by below part as drawing



NO.	Q'TY	Description
1	1	Case
2	1	Cover
3	1	Fan
4	1	PTC heating element
5	1	Bracket
6	1	Controller

1-5. Airflow baffle

The cool air flow into the heater and warmed up by PTC heating element inside the case, then heated air is supplied to the system.



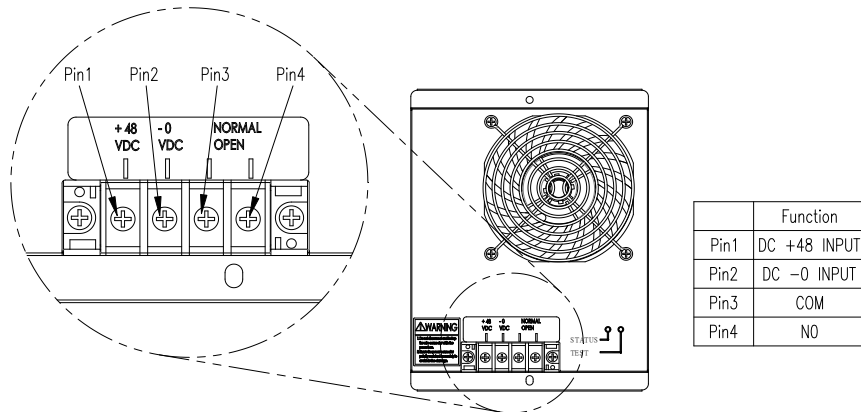
Part no. :

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2. Electrical specification

2-1 Connection and LED indicator

Connection



Dry contact : (Contact max. rating: **60VDC/50mA**)

Dry contact default setting for normal status is OPEN (N.O.), the alarm output is CLOSE for below abnormal status.

Description	Definition
Connection	Pin 3 , 4
Fan & Heater & Sensor normal	OPEN
FAN or Heater or Sensor failed	CLOSE
Power OFF	CLOSE

LED indicator

	Status LED
Fan , heater or sensor is normal	GREEN
Fan , heater or sensor is failed	RED
Heater off	No light in dark

WARNING :

1. Disconnet power to device before inserting or removing connector
2. Ensure power connector polarity is matched correctly to avoid damage to device

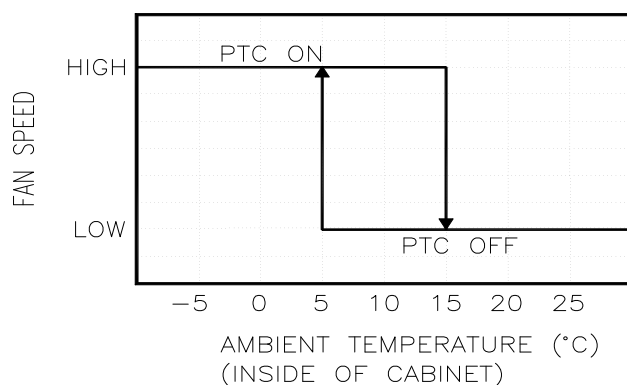


Part no. :

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2-2 Standalone control mode

HEH100PA can detect the ambient temperature inside of cabinet to active PTC heating element itself to warm up the airflow. The ON/OFF vs cabinet temperature describes as below figure.



3. Environmental condition

3-1 Fan operating temperature

-40 °C to + 60 °C

3-2 Storage temperature

-40 °C to + 75 °C

3-3 Humidity

0 ~ 90% RH, non-condensing

3-4 Ingress Protection rating

IP20 (IEC60529)

3-5 MTBF

The L10 Fan life is expected to be at least 70,000 hours continuous operation at 40°C with 15 ~ 65%RH .@ label rated voltage.

4. Reliability table

Test item	Condition
High temperature	IEC 60068-2-2
Low temperature	IEC 60068-2-1
High temp. / High humidity	IEC 60068-2-14 TEST Nb
Temperature cycle	IEC 60068-2-3
Vibration	ETSI 300 019-1-4 CLASS 4.1
Ingress protection	IEC 60529 IP20
Package bump	IEC 60068-2-29

Part no. :

Delta model no. : HEH100PA

5. Safety Certification


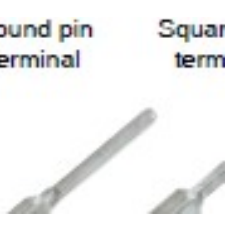


6. Power sourcing wire connection

Before using, need to install power wire into heater.

Terminal Block Types and Connection Methods

General terminal block types and how to connect them are shown in the following table.

Terminal block type	Screw terminal blocks	
	This type of terminal block is structured to connect and fasten wires or crimp terminals directly or with a washer at the bottom of the heads of the terminal screws.	
	For forked or round terminals	For pin terminals
Securing method	Screws	
Applicable crimp terminals *1	 Forked terminal Round terminal	 Round pin terminal Square terminal
Connection steps	Three-step connection (1) Loosen the screw with the tool. (2) Insert the terminal. (3) Tighten the screw with the tool.	
Wire type	AWG 14 300V 80°C min.	

*1. Bare wires (solid or stranded) can also be used. Forked & Round terminal must can be fitted in M4 screw.

NOTE: Disconnect power to device before inserting or removing connector.
Capacity of terminal block must be 300V, 20A min.

Part no. :

Delta model no. : HEH100PA

7. 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. : HEH100PA

- 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 must be shipped prepaid. Shipping costs for all warranty related repairs will be

Part no. :

Delta model no. : HEH100PA

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.