



Specification For Approval

Customer : _____
Description : Heat Exchanger 160W/K
Customer Part No. : _____ Rev. : _____
Delta Model No.: HEX160PA Rev : 05
Sample Issue No. : _____
Sample Issue Date : Jun.3.2020

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

Approved by : _____

Date : _____

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Specification For Approval

Customer :

Description : Heat Exchanger 160W/K

Customer P/N :

rev. :

Delta model no. : HEX160PA

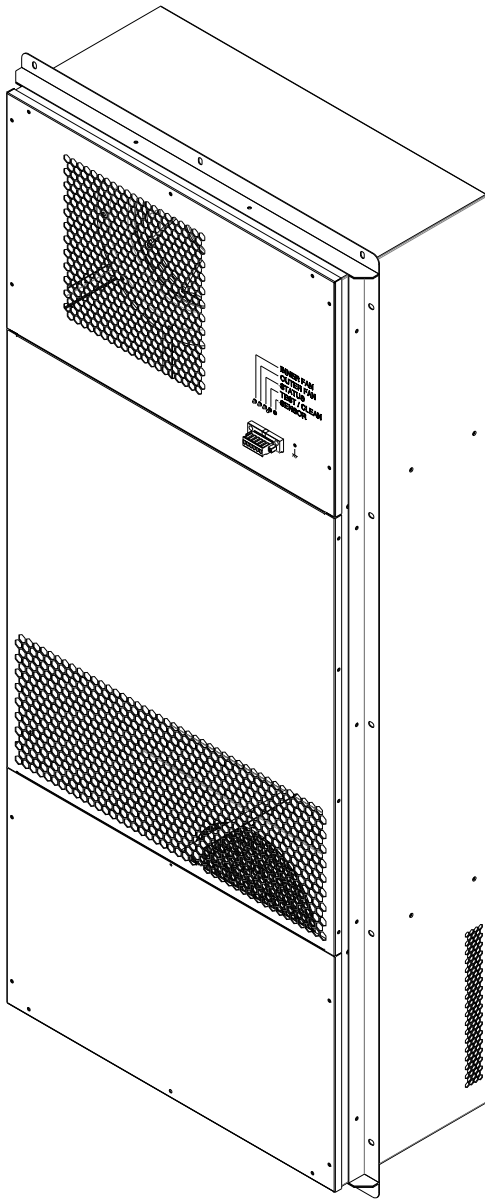
rev. : 05

Sample revision:

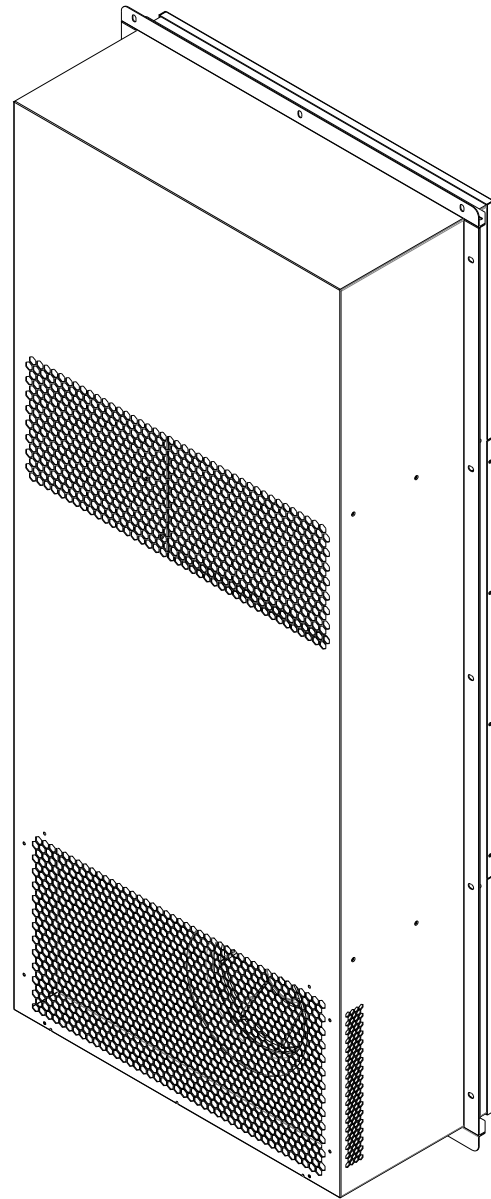
Issue no. :

Sample issue date :

Quantity : sets



Internal



External

Part no. :

Delta model no. : HEX160PA

1. Description

1-1. General description :

The Heat Exchanger (HEX) is designed for direct air to air heat exchange to remove the heat from the cabinet. It is easy to be installed in the cabinet with the nuts.

The internal and the external air circulation loops of the HEX are separated to prevent the introduction of dust, humidity and dirt. The fan on the external air loop conforms to IP55 protection rating.

1-2. Main feature & Model number (Operation 48VDC)

Main feature	Unit	Model Number
		HEX160PA
Outline Dimension	mm	1294 H x 567 W x 243 D
Cooling Capacity	W/K	160
Rated Voltage	VDC	48
Rated Current (*Note 2)	A	6.0
Operating Current	A	4.8
Operating Power	W	230
Operating Voltage Range	VDC	40 – 60
Operating Temperature Range	°C	-10 ~ +65
Mounting Location	N/A	External Door / Wall
Controller	N/A	Built-in
Fan alarm / NTC alarm	N/A	Dry Contact Output
Acoustic Noise at 1.5M (Sound Pressure Level)	dB-A	65
Weight	Kg	40.0 ± 2

*Note 1: The cooling capacity (W/K or W/°C) is defined as $Q / (T_I - T_A)$

Q: Heat dissipation (W) from inside

T_I : Return temperature of internal air circuit (K OR °C)

T_A : Ambient temperature of external air circuit (K OR °C)

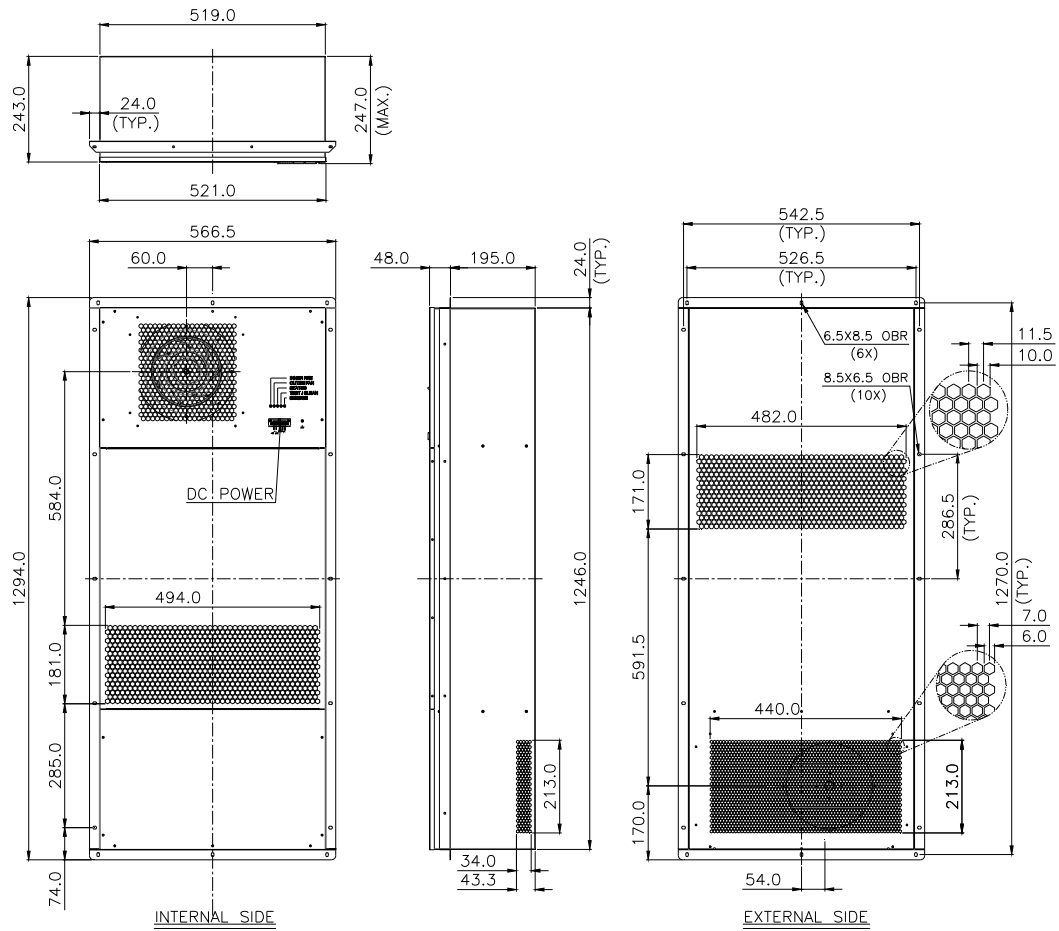
*Note2: Rated current is announcement of safety, the current application have to be under this definition

Part no. :

Delta model no. : HEX160PA

1-3. Dimension

1-3-1 Drawing

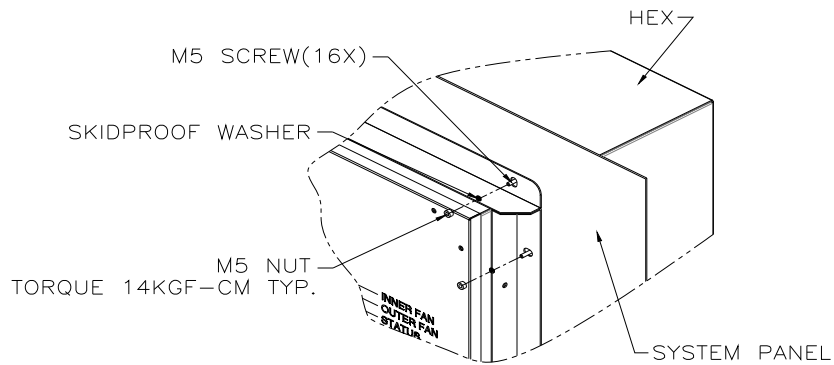
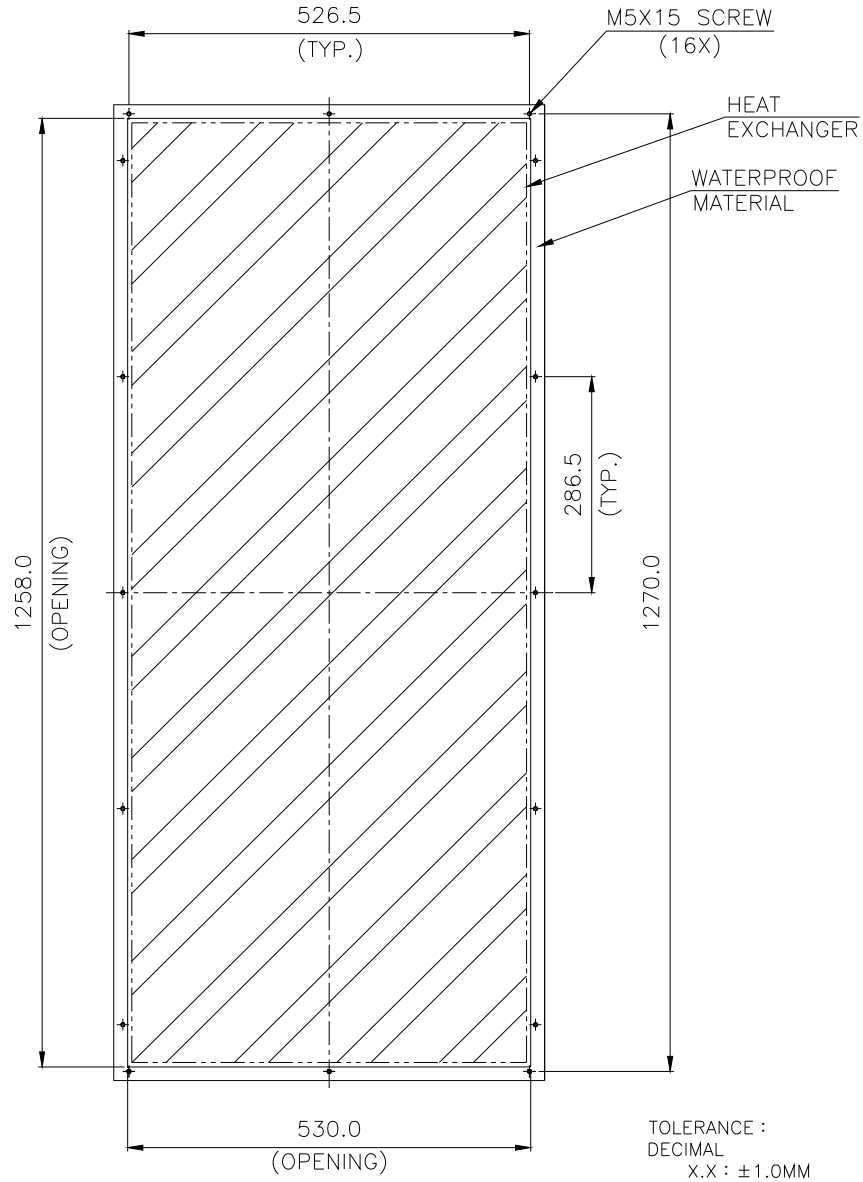


- (1) Material : SGCC t=1.5mm
- (2) Finish : Powder paint 75(min), Color RAL 7032.
- (3) Tolerance : ± 2 mm

Part no. :

Delta model no. : HEX160PA

1-3-2 Mounting panel cutout



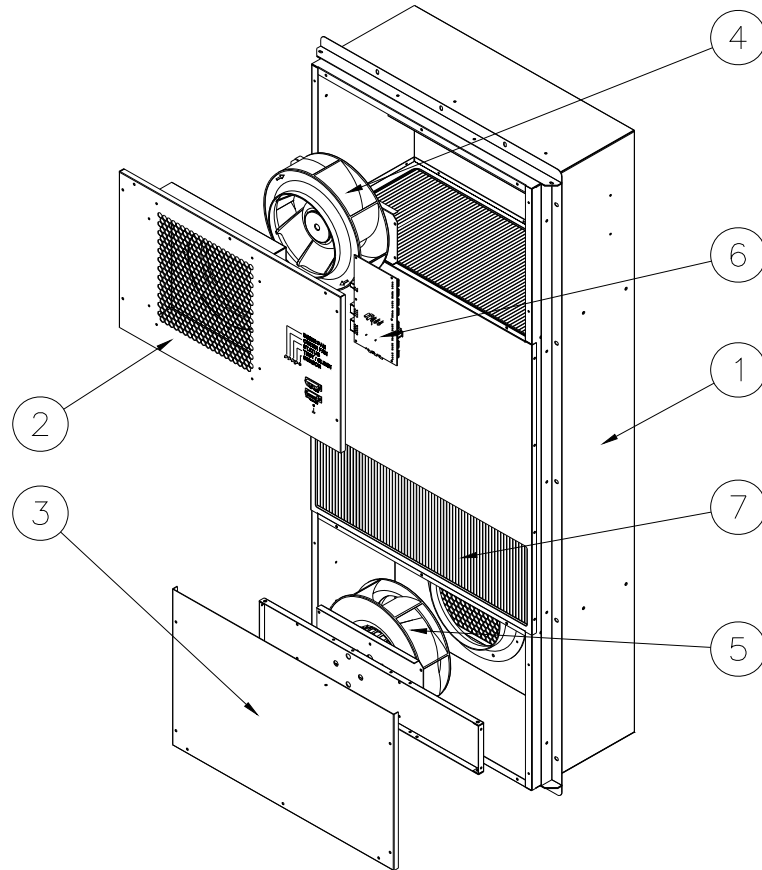
Part no. :

Delta model no. : HEX160PA

1-4. Configuration & Maintenance

The HEX is composed of the key components as the following:

Chassis, Heat Exchange Core, Controller and Fan Tray, user can slide out the fan tray easily for replacement of the controller and fans.



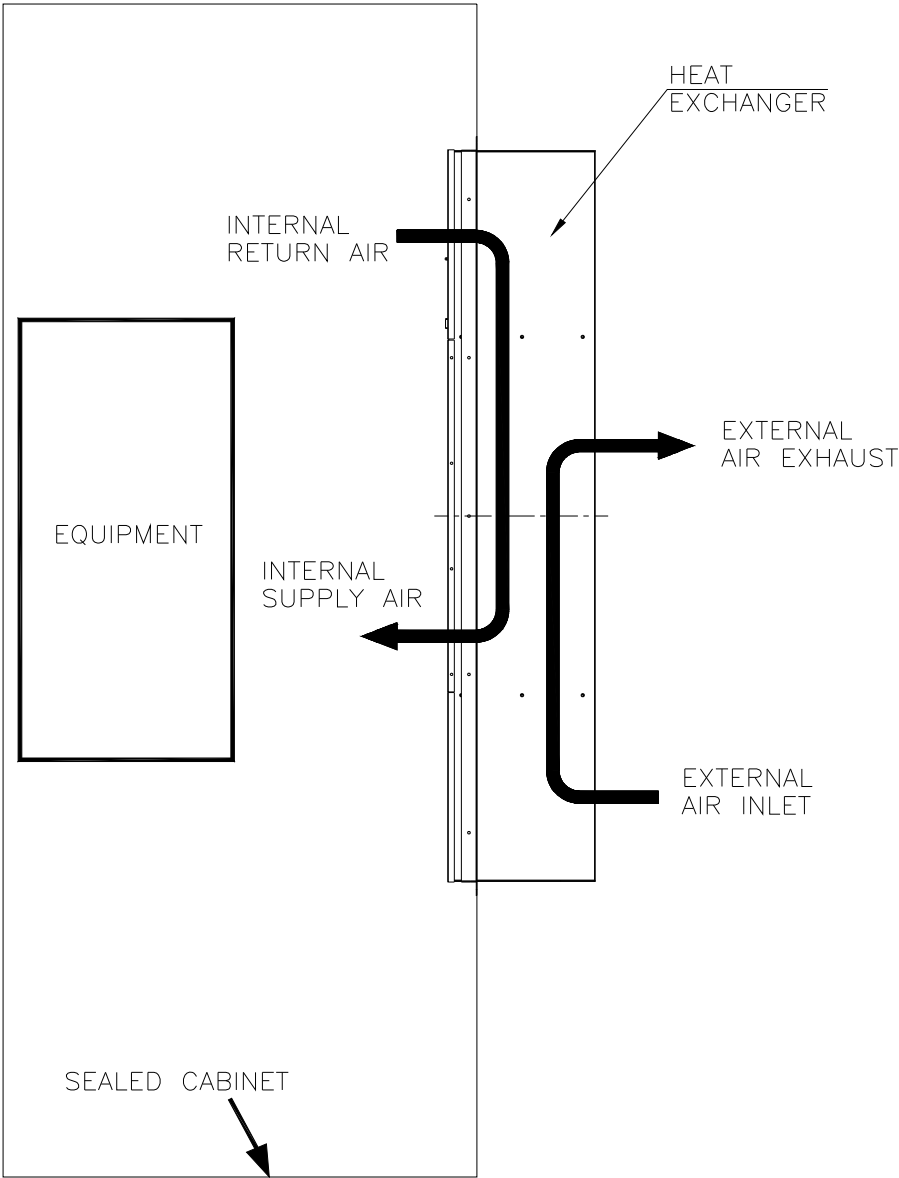
Item	Q'ty	Description
1	1	Chassis assy
2	1	Internal plate assy
3	1	External plate assy
4	1	Internal fan
5	1	External fan
6	1	Controller assy
7	1	Heat exchange CORE assy

Part no. :

Delta model no. : HEX160PA

1-5. Thermal path and Airflow baffle

With the forced convection using the blower fan, the warm return air generated by the equipment will be blowing into the upper inlet and pass through the HEX core, the temperature will be lower on the other side of the core. The cold supply air will be used to cool down the system ; While on the opposite side , cooler air from the out environment will be drawn into the lower inlet and bring the heat of the HEX core out from the upper outlet . The thermal exchange path is shown in the figure below.



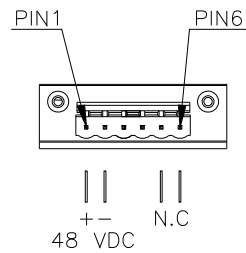
Part no. :

Delta model no. : HEX160PA

2. Electrical specification

2-1. Indicator & Connector

Connector " -48V VDC " , on panel plate : 2EHDP-06P , mate with : 2ESDVM-06P

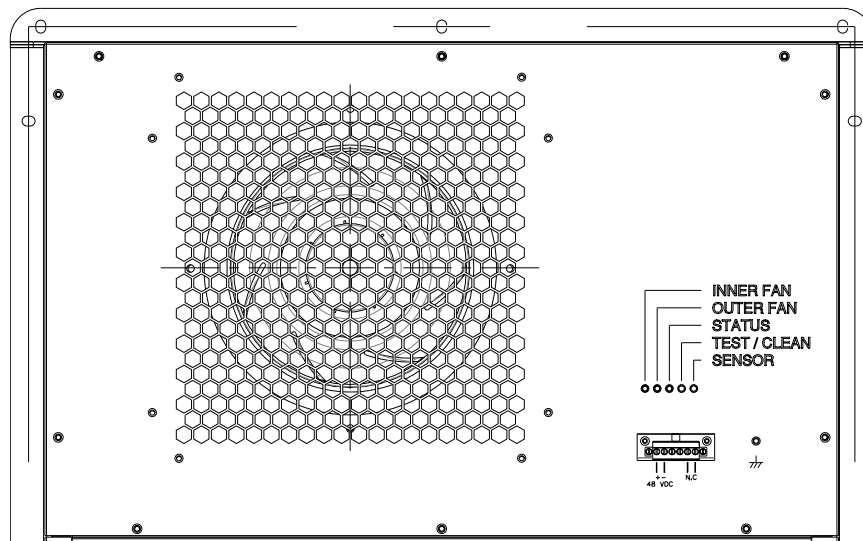


PIN ASSIGNMENT	FUNCTION
PIN1	+48 VDC
PIN2	0 VDC
PIN3	NA
PIN4	NA
PIN5	Alarm dry contact
PIN6	Alarm dry contact

Alarm logic depends on user setting (Normal Close)

- Normal : Pin5 and Pin6 dry contact output close
- Fan failed : Pin5 and Pin6 dry contact output open
- NTC fail : Pin5 and Pin6 dry contact output open
- Power off : Pin5 and Pin6 dry contact output open

Pin5 to Pin6 ----- MAX. (± 75VDC)50mA



Switch "TEST / CLEAN"

When pressing the "TEST / CLEAN" button, both outer fan and inner fan will run from low speed to high speed for testing purpose . The testing process is around 2 minutes, and the LED of INNER FAN and OUTER FAN will be blinking in GREEN color.

When the fan failed, the LED will be blinking in RED. and it can be turned off by pressing the "TEST / CLEAN" button again .

Part no. :

Delta model no. : HEX160PA

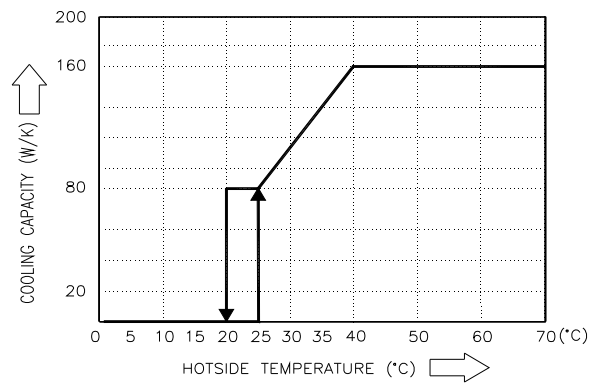
- LED of "INNER FAN & OUTER FAN"
 - (GREEN): Fan normal
 - (RED): Fan failed
 - (Blinking GREEN): Fan is normal during test
 - (Blinking RED): Fan failed during test

- LED of "STATUS"
 - (GREEN) : NTC normal at standalone mode
 - (RED) : NTC open or short at standalone mode

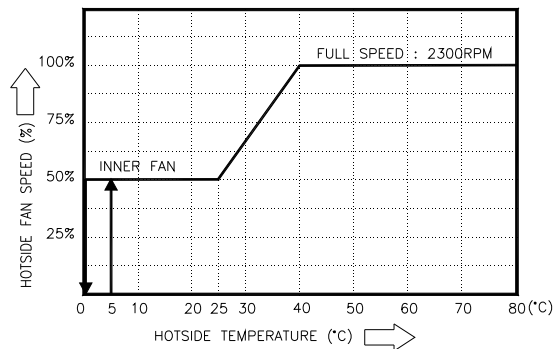
2-2. Standalone control mode

HEX detects ambient temperature to control cooling capacity.

Cooling capacity (W/K) V.S Temperature



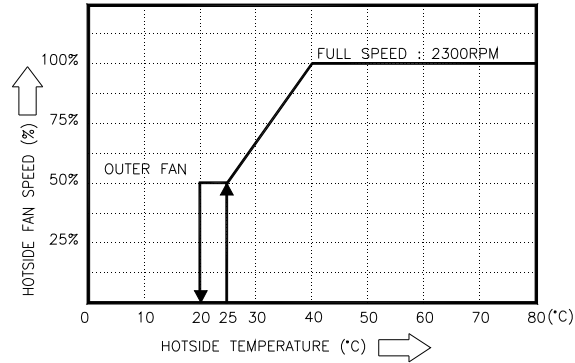
Inner fan speed V.S. Temperature



Part no. :

Delta model no. : HEX160PA

Outer fan speed V.S. Temperature



3. Environmental condition

3-1. Operating temperature

-10°C ~ +65°C (14°F ~ 149°F)

3-2. Storage temperature

-40°C ~ +70°C (-40°F ~ 158°F)

3-3. Humidity

External air loop : 0 ~ 100% RH

Internal air loop: 0 ~ 90% RH, non-condensing

3-4. Ingress Protection rating

IEC60529 IP55 (NEMA 3) on external side

GR487, salt spray 720hrs

3-5. 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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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 (External side)	IEC 60529 IP55 (NEMA 3)
Salt fog test (External side)	GR487 , salt spray 720hrs
Package bump	IEC 60068-2-29

5. Safety Certification

5-1. UL , cUL, TUV, CE

