Specification and Manual

Customer :	STD		
Description :	Heat Exchanger　200 W/K		
Customer Part No. :		Rev.:	
Delta Model No. :	HEX200PE	Rev :	01
Sample Date Code:			
Sample Issue Date :	DEC.08.2022		

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   TEL : 886-(0)3-3591968

TAOYUAN CITY 333, TAIWAN   FAX : 886-(0)3-3591991

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Description

This document is an installation and the characteristics of Delta HEX200PE-D01. 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

HEX 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.
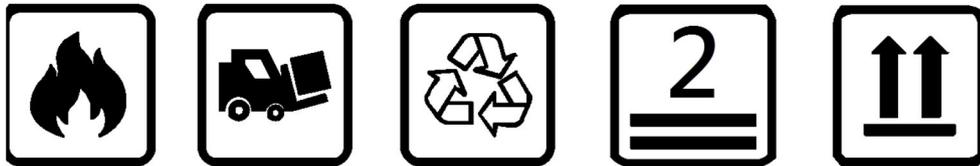
Safety Notes

Please read the safety notes carefully before installing HEX 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 injure 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.

⚠ Warming:

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

Install the HEX in accordance with the instructions in this installation manual. Improper installation may result in water leakage, electric shocks or fire.

3. Make sure that all wiring is secured, the specified wires are used, and there is no strain on the terminal connections or wires.

4. 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.

5. Before serving or cleaning unit, switch power off and disconnect power supply.

6. When cutting or drilling into wall or ceiling, do not damage electrical wiring or hidden utilities.

7. Be sure to use only the specified accessories and parts for installation work.

8. 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 HEX on a wall/ door strong enough to withstand the weight of the unit.

2. Do not allow a child to mount on the outdoor unit or avoid placing any object on it.

3. Do not block air inlets or exits.

4. Do not install the HEX at any place where there is a danger or flammable gas leakage.

5. To avoid injury, do not touch the air inlet or aluminum fins of unit.

6. Watch your steps at the time of fin cleaning or HEX inspection.

7. Do not topple the HEX while moving or storage.

8. 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.

9. Children being supervised not to play with the appliance.

Specification for Approval

Customer :	STD
Description :	Heat Exchanger 200 W/K
Customer P/N :	Rev. :
Delta model no. : HEX200PE	Rev. : 01
Sample revision. :	Date Code :
Sample issue date : DEC.08.2022	Quantity : 1
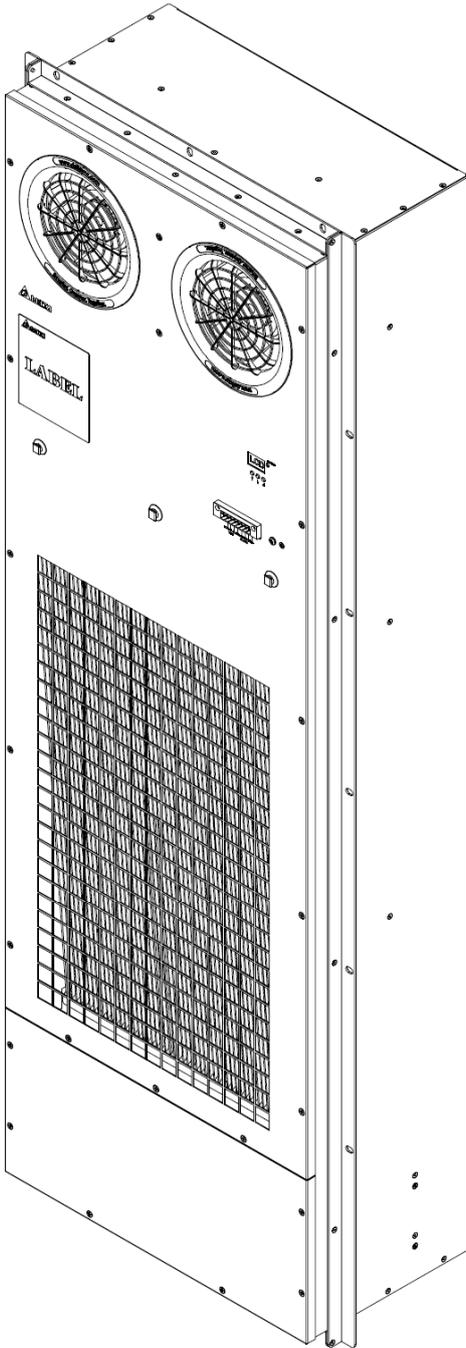
INTERNAL
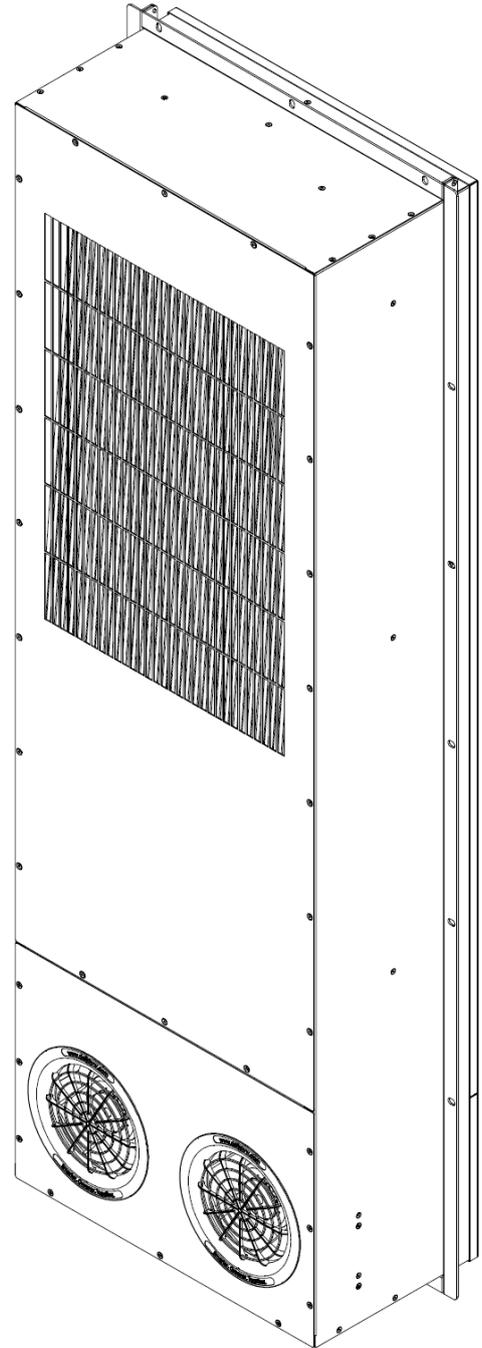
EXTERNAL

1. Product Instruction

1-1. General Description

The Heat Exchanger (HEX) is designed for direct air to air heat exchange to remove the heat from the cabinet, and there is designed for IP55 sealed outdoor telecom cabinet to provide stable and optimum internal conditions for equipment and avoid hotspot inside 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

Dimensions, Weight & Mounting method		
Dimension (H x W x D) (without flange)	mm	1330 x 425 x 230
Application		Outdoor
Weight	Kg	44.0
Mounting Method		Door/Side
Color (optional)		RAL7035
Environmental Protection & Performance		
Operating Temperature Range	°C	-20 to +65
Refrigerant		R134a
Protection for Dust ,Wind and Water (External)	IEC 60529	IP55
Noise (1m)	dB-A	64
Operating Status	N/A	LED Indicator / Display Board
Cooling Capacity & Operational Data		
Rated Cooling Capacity	W/K	200
Rated Cooling Current	A	10.5
Rated Internal Airflow	CMH	914
Rated External Airflow	CMH	822
Power & Range		
Input Voltage	VDC	48
Max. Operating DC Current	A	3.5
Alarm	N/A	Dry Contact Output
Key Components		
Controller		Built-in Smart Controller
Fans		Delta High Efficiency Blowers

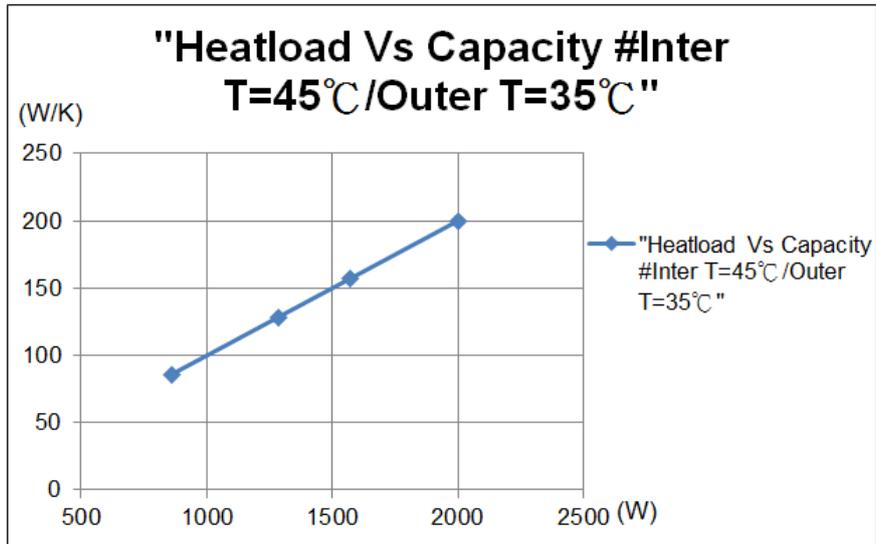*Note 1 : The cooling capacity (W/K or W/°C) is defined as Q / (TI-TA)

Q : Heat dissipation (W) from inside of cabinet
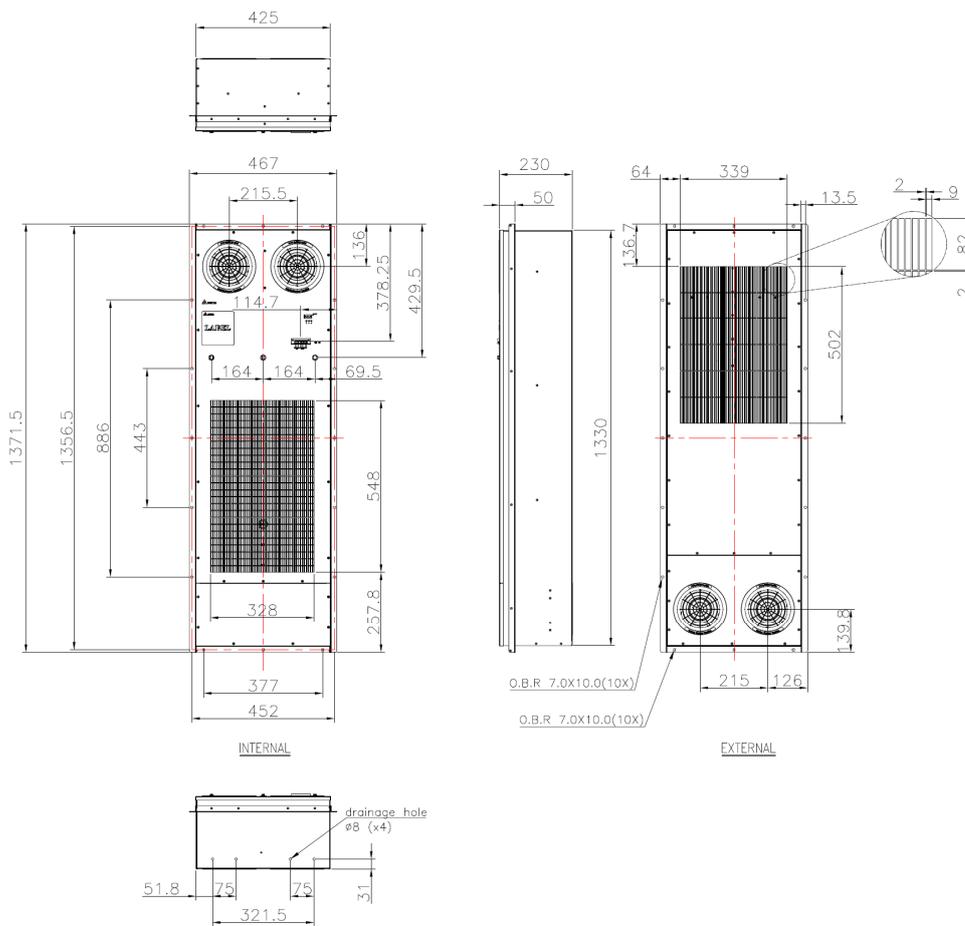
TI : Return temperature of internal air circuit (K OR °C)
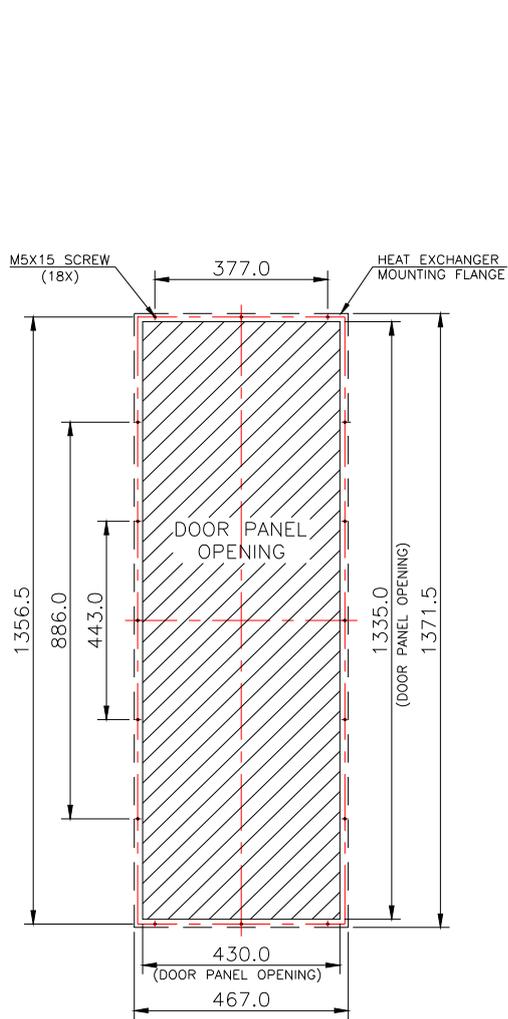
TA : Ambient temperature of external air circuit (K OR °C)

1-3. Dimension

(mm)

(1) Material: Case SPCC sheet t=1.0mm.

(2) Finish: Powder coating 75~120 µm, Color RAL 7035.

(3) Dimensional Tolerance: ± 1mm [0.04"]

1-4. Mounting Panel Cutout

INSIDE

OUTSIDE

M5X15 SCREW
(18X)

377.0

HEAT EXCHANGER
MOUNTING FLANGE

DOOR PANEL
OPENING

1356.5

886.0

443.0

1335.0
(DOOR PANEL OPENING)

1371.5

430.0
(DOOR PANEL OPENING)

467.0

* VIEW ORIENTATION :
  FROM OUTSIDE OF DOOR PANEL

* TOLERANCE : ±0.5MM

HEX

GASKET

MOUNTING PANEL

M5 SCREW(16X)

SKIDPROOF WASHER

M5 NUT

SYSTEM PANEL

TORQUE 14KGF−CM TYP.
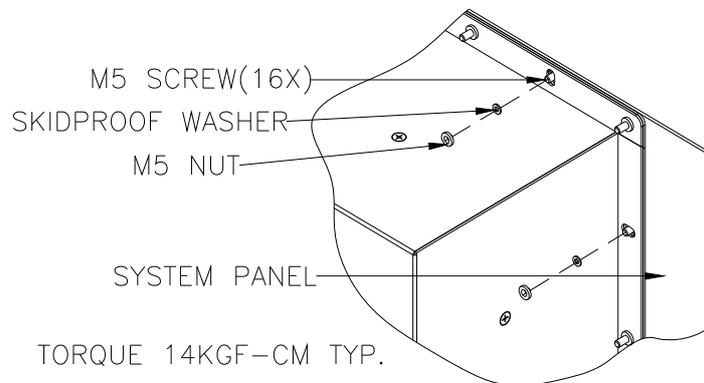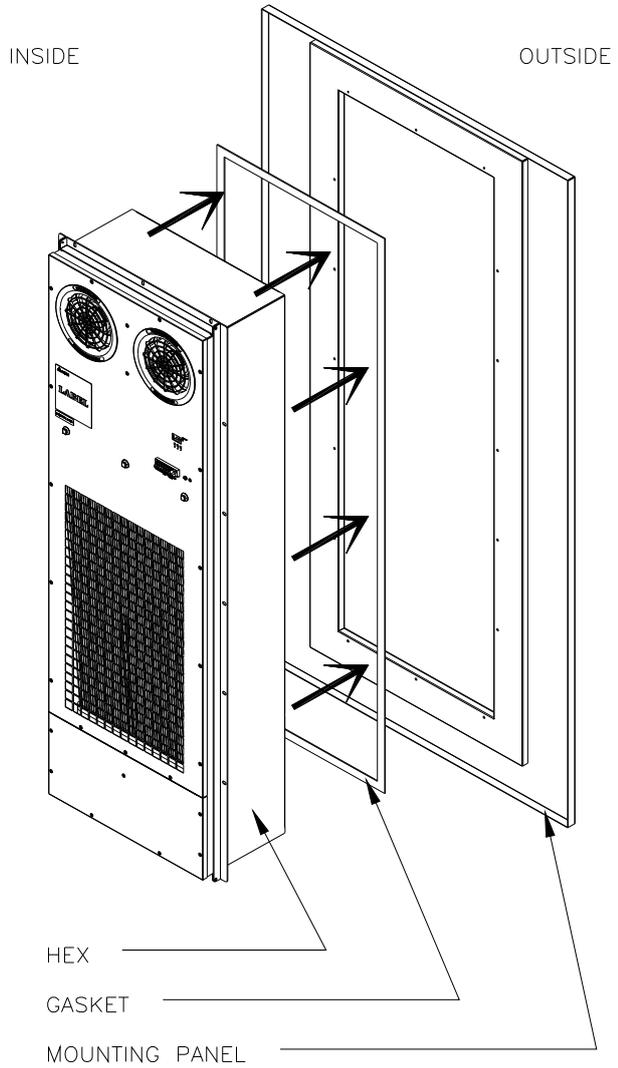
1-5. Configuration & Maintenance

Make sure the HEX 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.
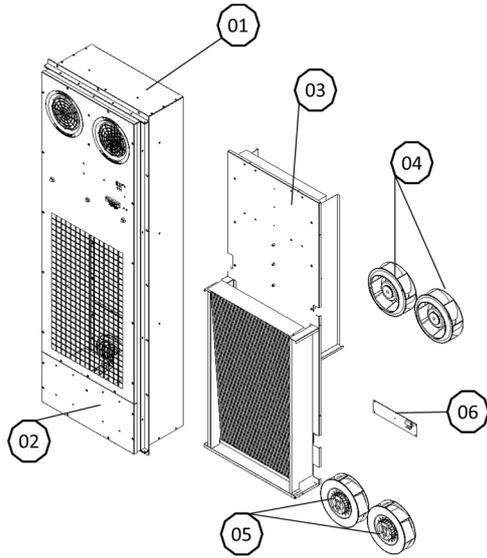
NO.	Q'TY	DESCRIPTION
1	1	Case Chassis
2	1	Case Cover
3	1	Heat Exchanger
4	2	Internal Fan
5	2	External Fan
6	1	Power Board

In order to assure the HEX 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 heat exchangers is used for drainage, please clear drain holes when the maintenance. Please also notice that following:

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.

6. If any abnormal acoustic noise from HEX happened, please turn off the product and contact with customer services.

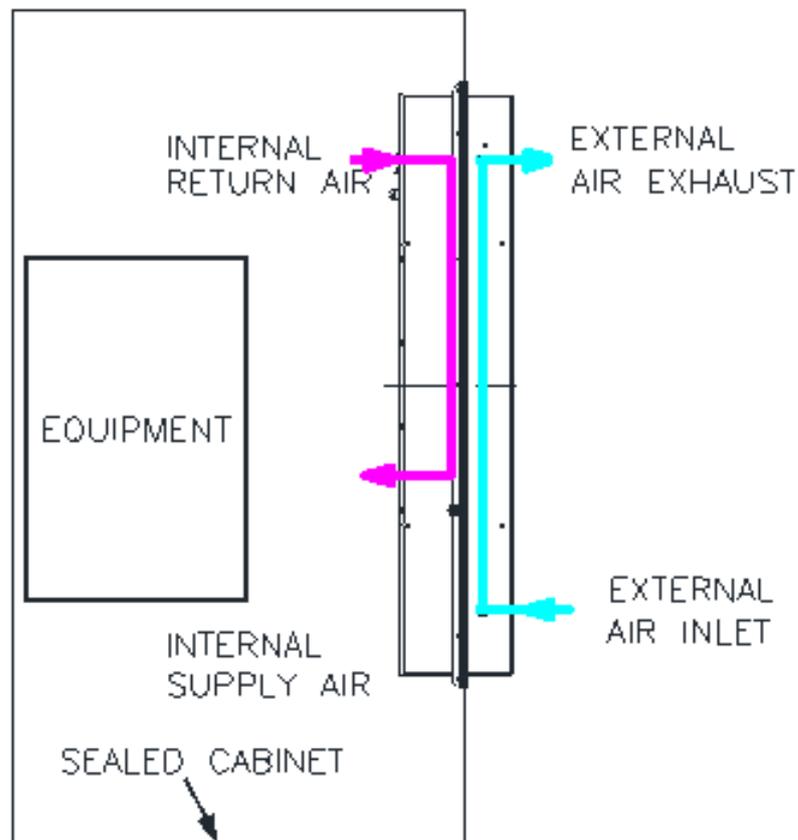7. The refrigerant is environmental friendly product of R134a. Little refrigerant leakage (< 5 g/ year) is allowed for application. If refrigerant leakage seriously, please turn off the power and wait for at least 2 hours to make sure the refrigerant fully exhaust. Please also contact the services to replace spare parts.

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.
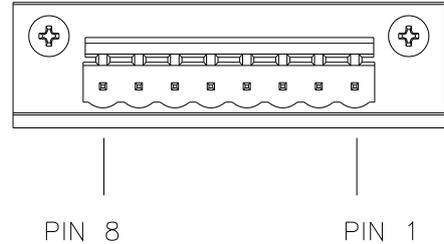
2. Electrical Specification

2-1. Indicator & Connector

2-1-1 Power Supply & Alarm Connector

Pin	Description	Cable wire size
1	RS485A	24 AWG
2	RS485B	24 AWG
3	Smoke sensor	24 AWG
4	Smoke sensor	24 AWG
5	Alarm	24 AWG
6	Alarm	24 AWG
7	-48 VDC	16 AWG
8	RTN	16 AWG

PIN 8   PIN 1

➢ System alarm default setup

	Dry-contact output	
display setup	normal	any alarm happen or DC input supply fail
1 (System default setup)	Common (C) — Normally Open (NO)	Common (C) — Normally Closed (NC)
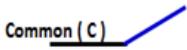
- Specification:
- Contact rating: 2A@30VDC
- Normal:

    PIN 5 and PIN 6 dry contact output open
- Any alarms happening:

    PIN 5 and PIN 6 dry contact output close

A   **B**
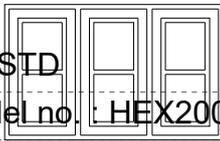
Part no. : STD

Delta model no. : HEX200PE

◎ STATUS

2-1-2 Panel operation   **C**

↑ ↓ ↵

888	7-Segment Display
◎ STATUS	Status LED
↑	Up
↓	Down
↵	Parametric Setup

- **A**: *Display*:

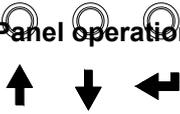It will show the temperature inside the cabinet and system parametric setup.

- **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.

- **C**: *Press Buttons:*

   ❖ ↑: UP or increase

   ❖ ↓: DOWN or decrease

   ❖ ↵ (SET): Parametric setup

2-2. Alarm Logs & Fault Processing

➤ Alarm Items

Item	Alarm	Flash Times(Status Led)
1	Outdoor Temp. Protection	4
2	Indoor Temp. Sensor	3
3	Outdoor Fan Protection	2
4	Indoor Fan Protection	1

3. Environmental Condition

3-1. Operating Temperature

-20 °C ~ +65 °C (14 °F ~ 131 °F)

3-2. Storage Temperature

-40 °C ~ +70 °C (-4 °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

6. Accessory

 ➢   Power and Alarm Cable

Pin	Description	Cable wire size
1	RS485A	24 AWG
2	RS485B	24 AWG
3	Smoke sensor	24 AWG
4	Smoke sensor	24 AWG
5	Alarm	24 AWG
6	Alarm	24 AWG
7	-48 VDC	16 AWG
8	RTN	16 AWG

PIN 1

PIN 7 (−)
PIN 8 (+)

Part no. : STD

Delta model no. : HEX200PE
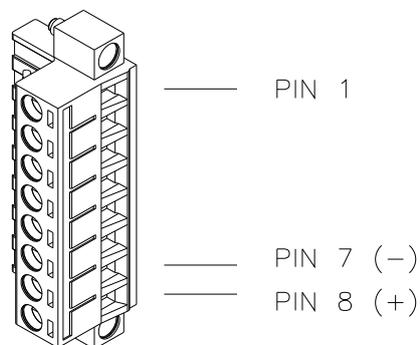
7. Installation Notice

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

Space tight cause air re-circulation
Reduce cooling performance potentially
Keep space as wide as possible

External Side

Hot Air

Air-con

* Recommended "a" keep 0.5 meter at least

Internal Side

External side

Equipments or Power system

Air-con

* Recommended "a" keep 1.0 meter at least

Equipments

Space tight cause air re-circulation
Reduce cooling performance potentially
Keep space as wide as possible

Cold Air   Hot Air

Equipments or Power system

Partition should not block hot air circulation

Partition should not block cold air circulation

Equipments

Cold Air   Hot Air

Recommended air baffle isolate hot and cold air

Equipments or Power system

Keep suitable air channel for hot air circulation

Recommended 50mm gap

Equipments

Cold Air   Hot Air