



Specification For Approval

Customer : _____ STD _____
Description : _____ Thermoelectric Cooling 200W _____
Customer part no _____ Rev. : _____
Delta model no : _____ HET200VB _____ Rev. : 05 _____
Sample issue no : _____
Sample issue date : _____ Aug.08 2020 _____

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

Approved by : _____

Date : _____

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Part no. :

Delta model no. : HET200VB

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Part no. :

Delta model no. : HET200VB

Specification for approval

Customer : STD

Description : Thermoelectric Cooling 200W

Customer P/N :

Rev. :

Delta model no. : HET200VB

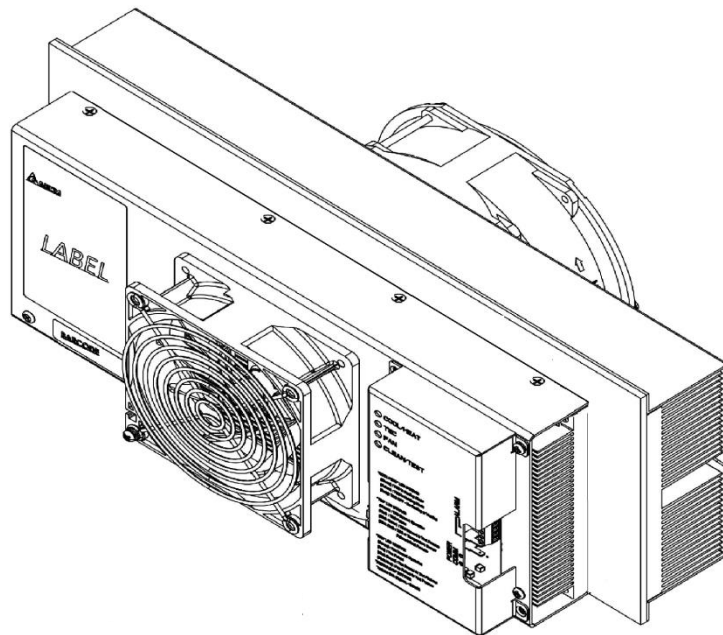
Rev. : 05

Sample revision :

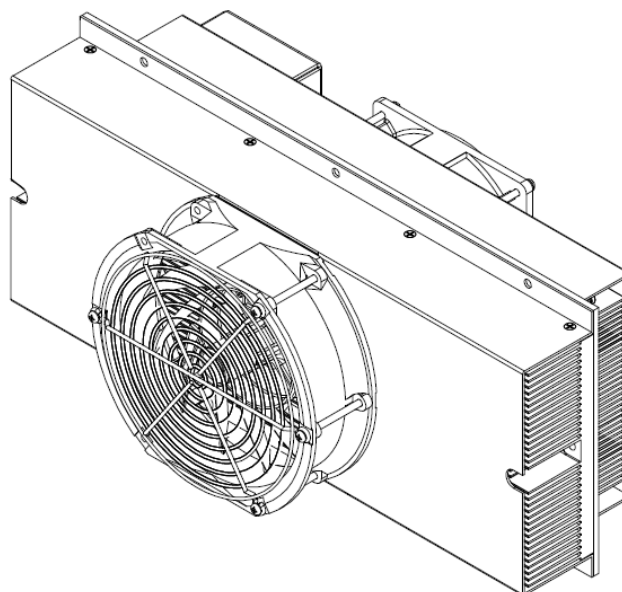
Issue no. :

Sample issue date :

Quantity : sets



INTERNAL



EXTERNAL

Part no. :

Delta model no. : HET200VB

1. Description

1-1. General description :

The thermoelectric Cooling (TEC) is designed for direct air to air heat removal in the cabinet. It is easy to be installed in the cabinet (recommended on the door of the cabinet) with the nuts.

The internal and external air circulation loops of the TEC Module are separated to prevent the entry of dust, humidity and dirt. The unit conforms to IP55 protection rating on the external air circuit.

1-2. Main feature (Operating 24VDC at 25°C)

Main feature	Unit	Model Number
		HET200VB
Outline dimension	mm	400 H x 180 W x 209 D
Weight	kg/ lb	9.0 ± 0.5 / 19.8 ± 0.22
Cooling capacity ($\Delta T = 0^{\circ}\text{C}$)	W	200 (TYP.)
Heating capacity @ -40°C	W	225 (TYP.)
Rated voltage	VDC	24 (TYP.)
Operating voltage range	VDC	21~27
Actuality Current	A	12.2 (TYP.)/16.0(Max.)
Rated Consumption	W	384(Max)
Operating temperature	$^{\circ}\text{C}$	-40 ~ +65
Internal airflow rate	CFM	100 (TYP.)
External airflow rate		120 (TYP.)
Acoustic noise at 1M : (Sound pressure)	dB-A	61.0 (TYP.) 64.0 (Max.)

*200 W cooling capacity is defined at $\Delta T = 0^{\circ}\text{C}$ and $T_{\text{ambient}} = 25^{\circ}\text{C}$

*The cooling capacity is defined when the internal and external airflow rate are at 100 CFM and 120 CFM, accordingly.

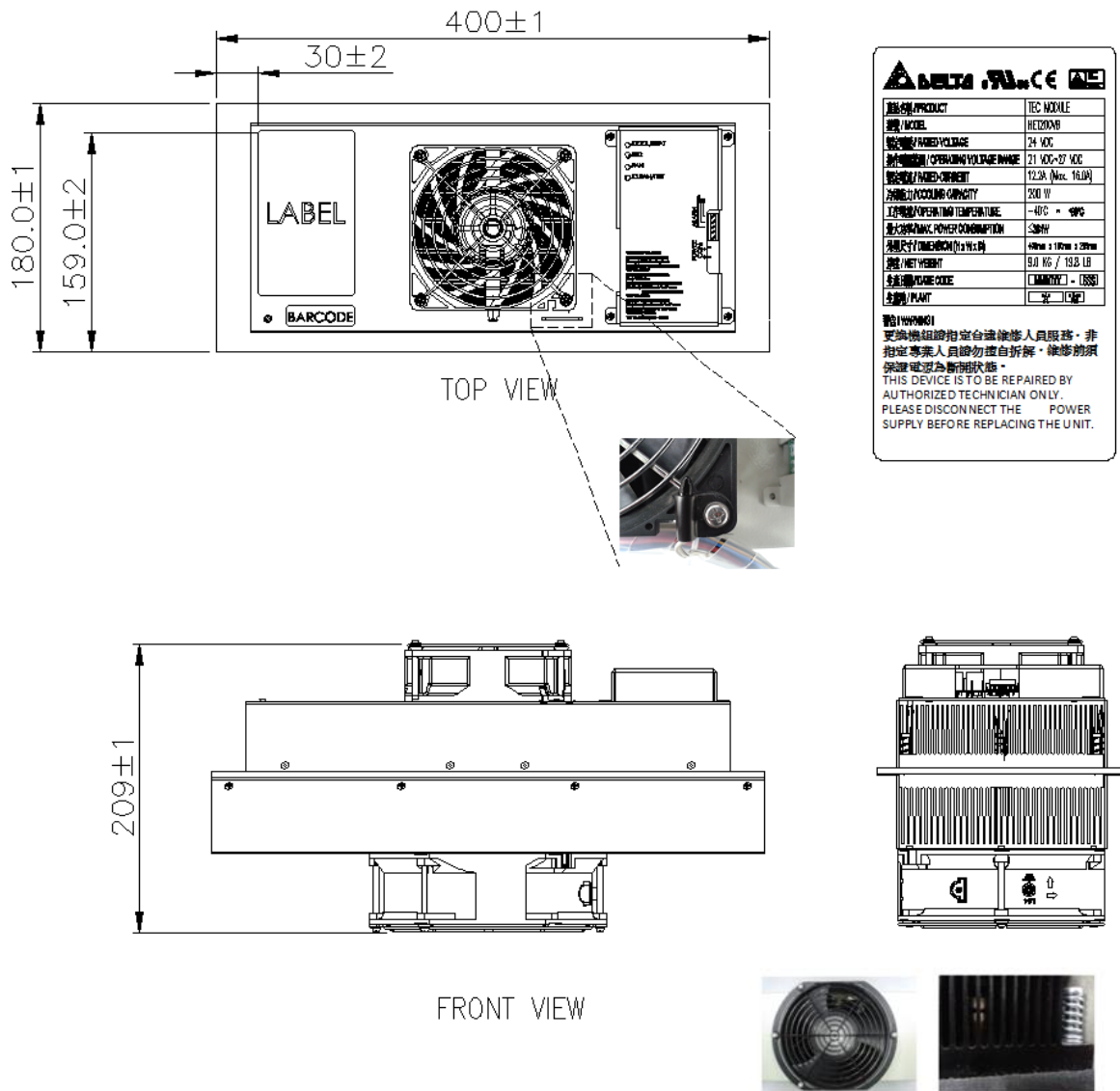
*Cooling capacity is for internal side.

Part no. :

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1-3. Dimension

1-3-1. Drawing



(1) Material : case aluminum sheet , t=1.5mm

(2) Finish : Power paint 75~120um,

(3) Color : RAL 7032

(4) Dimension tolerance:

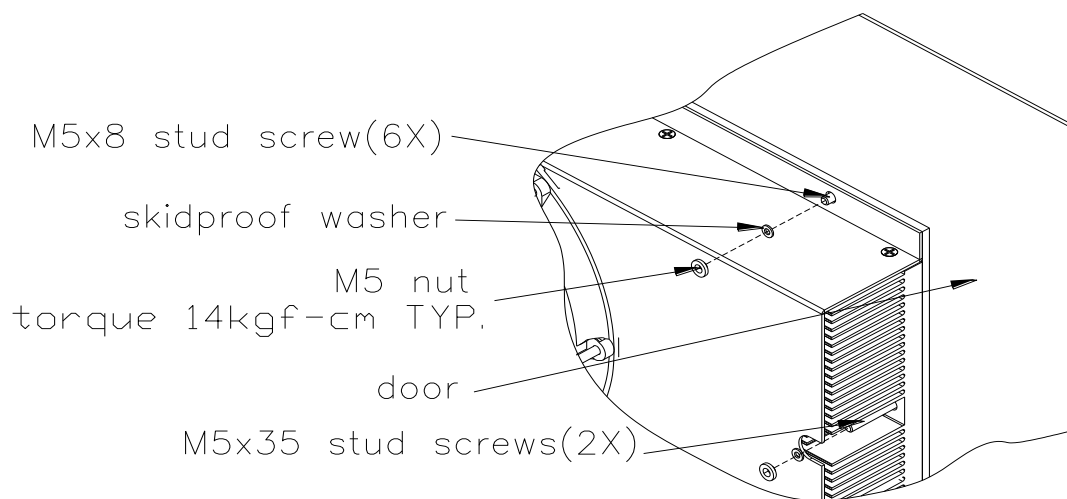
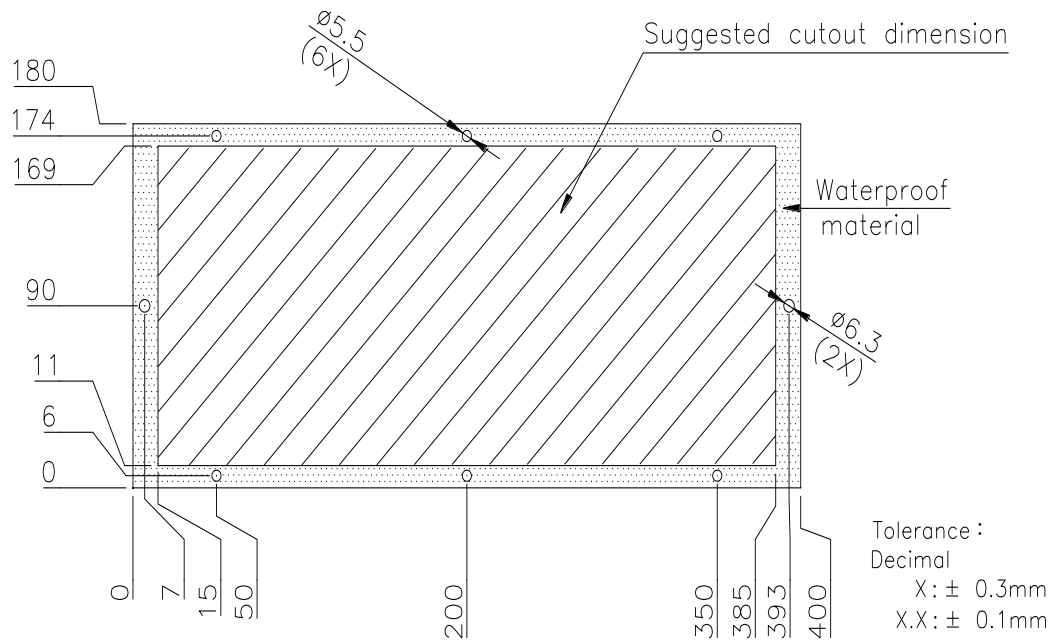
X.X [X.XX] : ± 1.0mm [0.04"]

X.XX [X.XXX] : ± 0.3mm [0.012"]

1-3-2. Mounting panel cutout

Part no. :

Delta model no. : HET200VB



Part no. :

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1-4. Maintenance

1-4-1. This device is to be repaired by authorized technician.

Please refer to the exploded drawing shown as previous page and follow below description for disassembly.

External fan: Disassemble mounting screw of external fan via screw driver & pull out the connector.

Internal fan: Disassemble mounting screw of internal fan via screw Driver & pull out the connector.

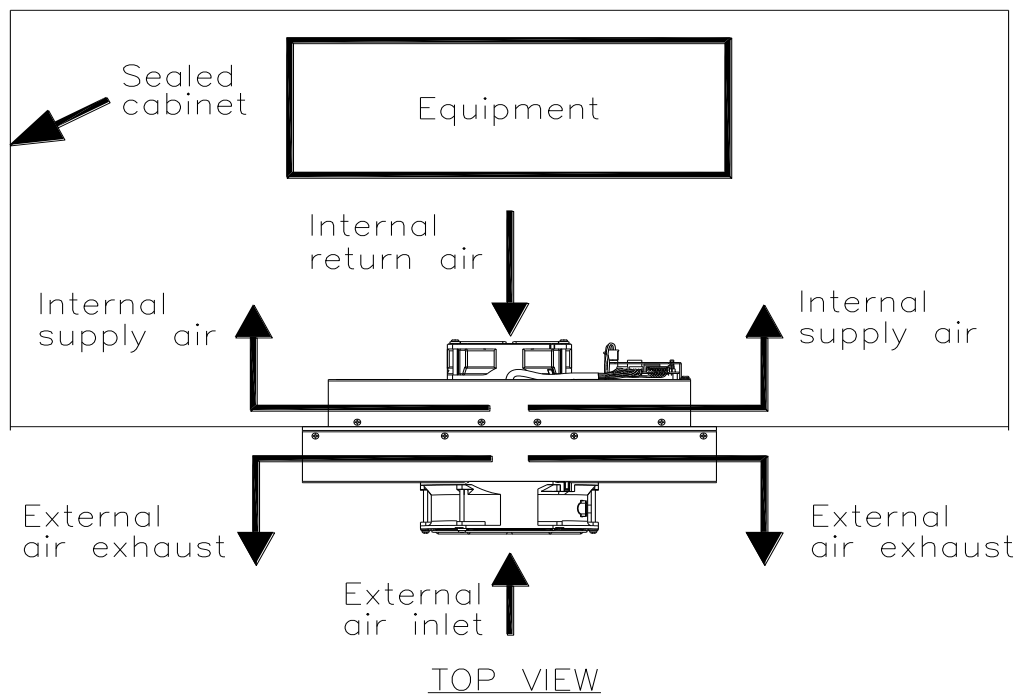
Controller: Need to disassemble internal fan first, then pull-out all cable connection on controller, take off mounting screw of controller finally.

TEC device: Due to TEC device have waterproof sealant protection and thermal conductive compound with heat-sink; please kindly ship back to Delta for replacement.

1-4-2. Please disconnect the power supply before replacing the TEC module.

1-5. Thermal path and airflow baffle

The thermal exchanged path is shown in the figure below.



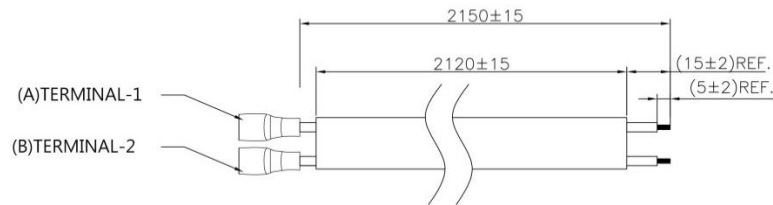
Part no. :

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2. Electrical specification

2-1. Indicator & connector

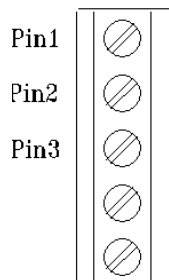
Power connector mate with Kang Yang FDFD2-250



PINOUTS	CABLE WIRE	DESCRIPTION	CABLE WIRE
TERMINAL	COLOR		TYPE
TERMINAL-1	RED	VDC 24 V(+)	UL 1015
TERMINAL-2	BLACK	VDC 0 V(GND)	AWG#14

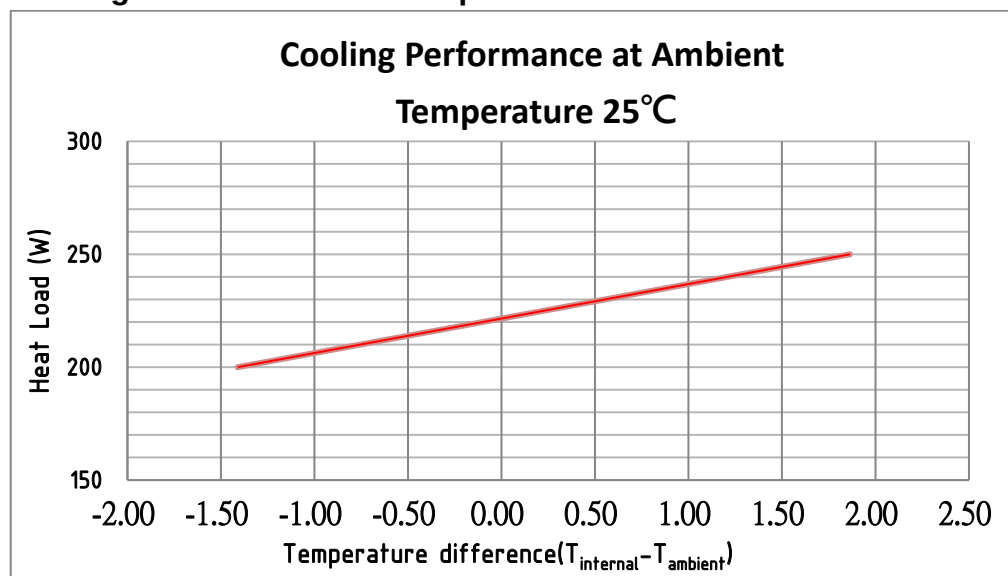
Alarm Connector mate with DINKLE P/N: EK381V-05P

PIN Assignment (ALARM):



Position #	contact status
Pin1 , Pin3	Normal : Open
Pin1 , Pin3	Fail : Close
Pin2 , Pin3	Normal : Close
Pin2 , Pin3	Fail : Open

2-2. Cooling Performance VS Temperature Difference

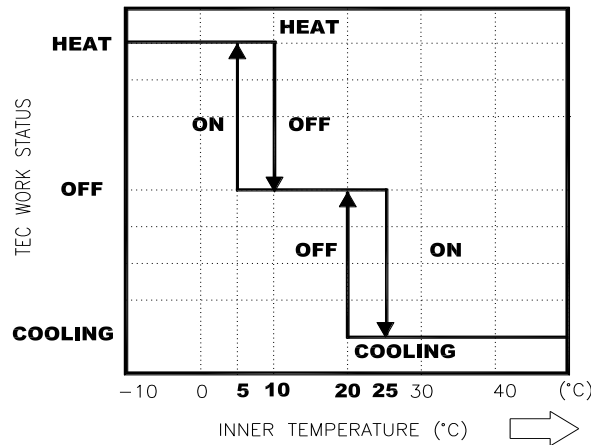


Part no. :

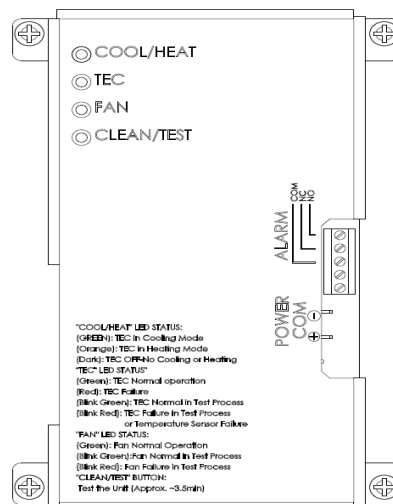
Delta model no. : HET200VB

2-3. TEC work temperature range

TEC module has two work status, cooling and heating, according to the cabinet internal temperature (detected by the NTC at inlet of internal fan).



2-4. Interface



- "COOL/HEAT" LED STATUS:
 - (Green) : TEC in Cooling Mode
 - (Orange) : TEC in Heating Mode
 - (Dark): TEC OFF - No Cooling or Heating
- "TEC" LED STATUS:
 - (Green) : TEC Normal Operation
 - (Red) : TEC Failure
 - (Blink Green) : TEC Normal in Test Process
 - (Blink Red) : TEC Failure in Test Process or Temperature Sensor Failure
- "FAN" LED STATUS:
 - (Green) : Fan Normal Operation

Part no. :

Delta model no. : HET200VB

(Red) : Fan Failure

(Blink Green) : Fan Normal in Test Process

(Blink Red) : Fan Failure in Test Process

■ CLEAN/TEST

There is an auto test button on control board, user can press this button to run heating and cooling process, the process is about 3.5 min. User can turn off this function by pressing this button again.

* The TEC will report a "TEC" failure via a Red LED when any abnormality in electrical current is detected.

Note: When any failure during Cooling or Heating mode is detected, the "FAN" and/or "TEC" LED(s) will remain Red even when the TEC enters in idle mode. However, before performing any maintenance, it is recommended that the "TEST" button be pressed, allowing the TEC to run for approximately 3.5 minutes, to validate any failure.

Alarm dry contact:

- Pin1 to pin3 "Open":
Normal
- Pin1 to pin3 "Close":
Fan, TEC, sensor failed or power off
- Pin2 to pin3 "Close":
Normal
- Pin2 to pin3 "Open":
Fan, TEC, sensor failed or power off

Connector "Alarm"

Pin to Pin ----- MAX. ($\pm$ 60VDC) 400mA

Part no. :

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3. Environmental conditions

3-1. Operating temperature :

-40°C ~ +65°C (-40°F ~ 149°F)

3-2. Storage temperature :

-40°C ~ +65°C (-40°F ~ 149°F)

3-3. Humidity

External air circuit: 0 ~ 100% RH

Internal air circuit: 0 ~ 95% RH

3-4. Protection rating

GR487 on external fan and IP55 (IEC60529) on internal fan.

IP51 (IEC60529) on controller.

3-5. MTBF

Fan lifetime is expected to have a minimum L10 life of 80,000 hours continuous operation at 40°C with 15 ~ 65%RH at 24 voltage

PS: The TEC module inside circuit is designed for application in without anti-sulfide condition,
If user have any special condition for application environment, please contact the HET
development department for verify first.

Part no. :

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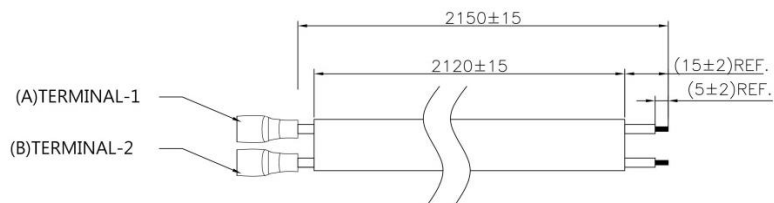
4. Certified safety



5. User cable

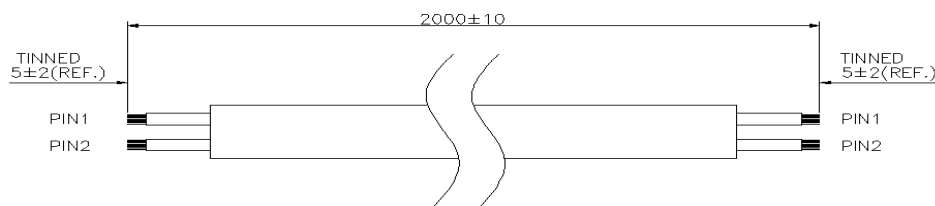
Each TEC module will provide 2 cables with shipment.

5-1 Power cable



PINOUTS	CABLE WIRE COLOR	CABLE WIRE TYPE
TERMINAL		
THERMINAL-1	RED	UL 1015 AWG#14
THERMINAL-2	BLACK	

5-2 Alarm cable



PINOUTS	CABLE WIRE COLOR	CABLE WIRE TYPE
Wire		
PIN 1	BROWN	UL 1061 AWG#22
PIN 2	BLUE	

Part no. :

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History

Rev.	Description	Drawn	Approved	Issue Date
00	Issue spec.	CS Wang	ERIC.ZANG	2014/12/17
01	Change rated current to 12.2A on page 4.	Derek JH. Tsai	Jerry Yang	2015/10/26
02	Change fan guard assemble direction on page 5	Derek JH. Tsai	Jerry Yang	2015/11/5
03	Add chapter 6 warranty, correct some data	CS Wang	Jerry Yang	2016/3/31
04	1.Add GR487 description and photo for external fan guard, spring and screw. (Page 5) 2.Modify protection rating of external fan. (Page 13)	CS Wang	Jerry Yang	2016/7/14
05	Remove non-condensing and safety depiction and warranty	KC.Liao	Mars.Wu	2020/08/05