



**TEC AIR CONDITIONER  
DATASHEET  
TEC-400W  
(with control panel)**

## 1. Introduction

### 1.1. Preface

notice!

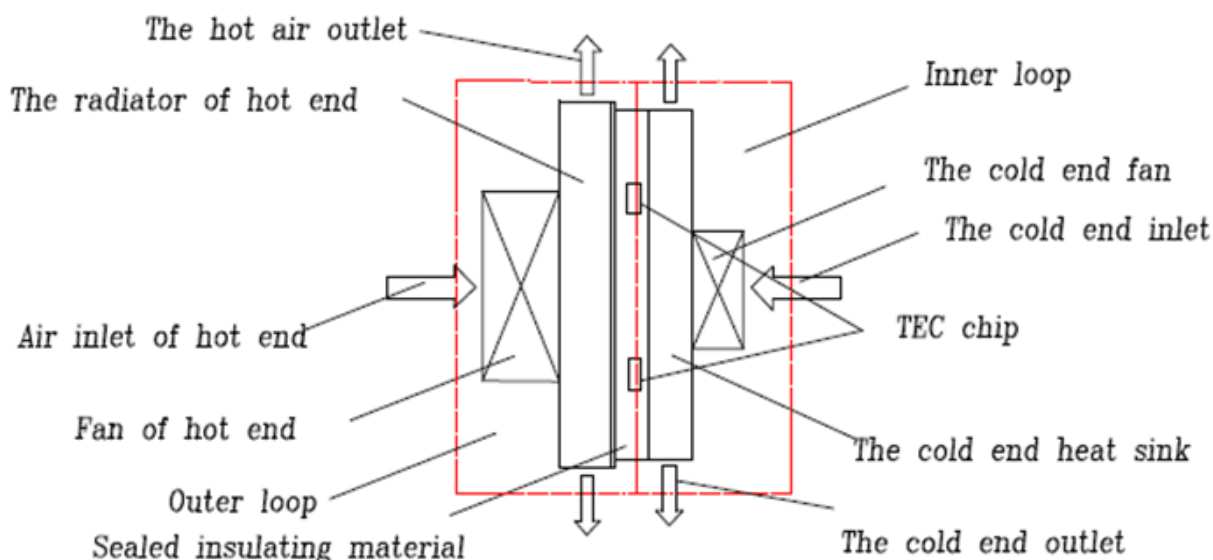
This manual book will introduce main trait, technical specifications, configuration, working principle, installation and debugging, operations and daily maintenance. The manual book fit for installation and use man. Please read before work, and pay attention to warning, please safekeeping the manual book .

### 1.2. Product introduction

TEC is mainly made of Semiconductor refrigeration piece, Heat sinks, fans, panel. TEC is small, light, easy to install, No refrigerant, no pollution to the environment, Cooling and heating functions can interchangeable, Can be connect an external emergency fan and hydrogen fan, can remote monitoring though RS485 .

### 1.3. Working principle

When the DC flow through the circuit, which is formed by different conductor connection in nodes produces endothermic or exothermic phenomenon, this phenomenon called peltier effect. TEC use in this peltier effect . When TEC power on , one side cooling through the fan and the heat sink to absorb heat, contained in the other side of the heating through the fan and heat sink get heat away.



TEC Working principle

1.4. Up to notch

GB/T2423.38-1990 Basic environmental test procedures \_ test electrical and electronic products R:Test method for water

GB/T 2423.1-2001 Electrical and electronic products environmental test Part 2: test method for testing A: low temperature

GB/T 2423.2-2001 Electrical and electronic products environmental test Part 2: test method for testing B: high temperature

GB4208-2008 Enclosure protection class

GJB150-86 Military equipment environment test method;

GB/T17626.8-1998 Electromagnetic compatibility test and measurement technology power frequency magnetic field immunity test.

GB9254-1998 Information technology equipment of radio disturbance limits and measurement methods

2. Product features

2.1. Inside fan control

Operate by inside fan with the highest speed, don't adjust speed.

Default parameter	By inside fan (RPM)
With the highest speed by inside fan	3600

2.2. Outside fan control

TEC module and outside fan share synchronization mechanism , outside fan can adjust speed. The outside fan will linear adjust speed between start temperature and last temperature. The fan will be the highest speed when heating start.

Default parameter	Cabinet return air temperature(°C)	Speed of outside fan (RPM)
Start adjust(low speed )	30	1800
End adjust (highest speed)	32	3600

### 2.3. Refrigeration

When the temperature is higher than refrigeration open points then operate refrigeration. When the temperature is lower than refrigeration open points then stop. When set the temperature, stop temperature should lower than start temperature.

#### Refrigeration parameter Settings

parameter	Default value	scope	unit	set point to describe
Sensitivity of refrigeration	2	[1~5]	°C	Refrigeration operation to stop back to the poor
Start point of refrigeration	30	[15~60]	°C	Refrigeration operation start temperature point

### 2.4. Heating

when the temperature is lower than heating point then start heating, when the temperature is higher than heating point then stop. The start temperature should lower than stop temperature.

#### Heating parameter Settings

parameter	Default value	scope	unit	set point to describe
Start point	5	[-10~15]	°C	start temperature
Stop point	15	[-5~25]	°C	Stop temperature

### 2.5. hydrogen discharging

The controller can hydrogen discharging , default every 24hours discharge 5 minutes.

### 2.6.TEC Refrigeration piece of hot and cold switching protection function

The current time must be longer than switch delay time when hot and cold switching , you can set , the default time is 5min.

### 2.7. Timing function for hydrogen

The controller can timing function for hydrogen , the default time is 5min every 24hours.

### 2.8. memory function when power off

The controller can memory the current state , can start when the power outages

### 2.9. Voltage protection

Controller fault protection start when the input voltage is smaller than under-voltage alarm or larger than the over-voltage alarm;

Voltage recovery is between under-voltage and over-voltage , the controller will normal operate .

### 3.0.Remote monitoring and alarm function

TEC can connect with computer by RS485 , user can check system state by monitor background ( including fan , TEC , sensor) and change parameter.

Communication parameters: Baud rate 9600 BPS( can set ):

Data bits : eight ;

Stop bits : one ;

parity : none

## 3. Product parameters

### 3.1. Product technical parameters

Dc voltage	VDC	-58 - -44
power	W	520
Cooling capacity	W	400
Heating capacity	W	630
installation	/	door
Working temperature range	°C	-40 - +55
Ambient humidity	RH	5% - 95%
Protection grade	/	IP 55
Noise (dB)	dB(A)	63
weight	Kg	13

### 3.2. Size of product

