Product introduction manual

Product name	TEC temperature controller
Model number	FCSE12131-1D01

Product overview

Semiconductor refrigeration thermostat， mainly for the precise control of TEC refrigeration, cooling plates and hot plates systems。 The user can set the relevant temperature directly on the display panel, or connect to the system host for remote control. This product includes display and control modules, which can be optionally configured on request.
Products comply with the standards IEC60730-1,IEC60730-2-9.

Application range

This product is mainly applied to temperature control of TEC, and also applicable to cooling systems containing TEC .

Product options

Category		Size （mm）	Configuration option
Control module	FCSE12131-1D01	72*72*75	□ Control module □ Control module+ Extended executive module
Extended executive module	FCSE122E1-1D01	100.7*72.2*33.2	

Control module basic technical indicators

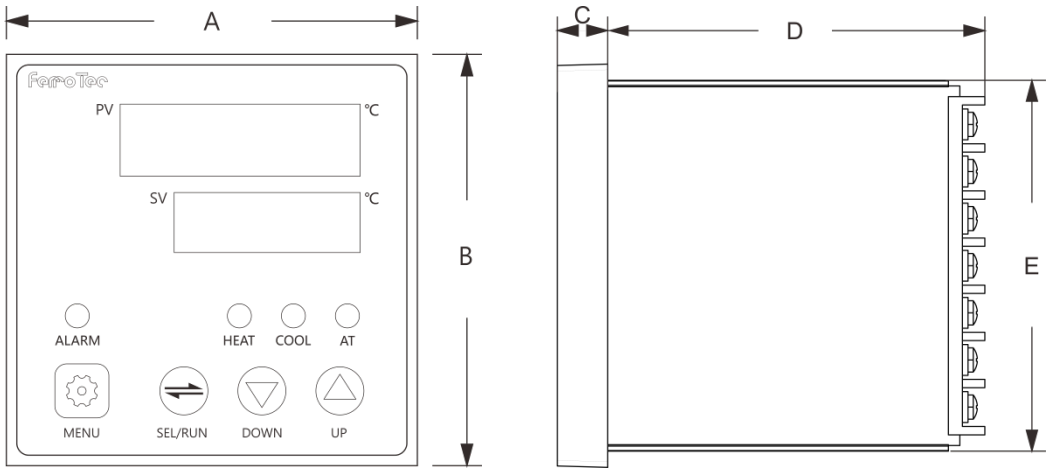
Control model	FCSE12131-1D01
Display digit	4
Display range	-1999~9999（-199.9~999.9）
Set range	-100~200（-100.0~200.0）
Communication interface	RS485
Temperature sensor	NTC/TC/RTD
Temperature detection resolution	0.1℃
Temperature stability	±0.5℃
Input/output voltage	5~12V
Rated high voltage drive current	0~10A ※1

※1： The drive current can be increased to 20A or higher by expanding the module.

Control module key functions and parameters

Protection function	Short-circuit protect
	Overload protect
	Steady-state abnormal alarm
	Temperature overrun alarm
	Temperature protection switch input I/O
Operation control	PID autotuning + fuzzy control
	8-stage temperature programming
	Temperature compensation
	Power limit
Output I/O and communication interface	Alarm status output I/O
	External communication interface: RS485
Communication protocol	ModBus-RTU
Other	Support the upper computer software

Control module size

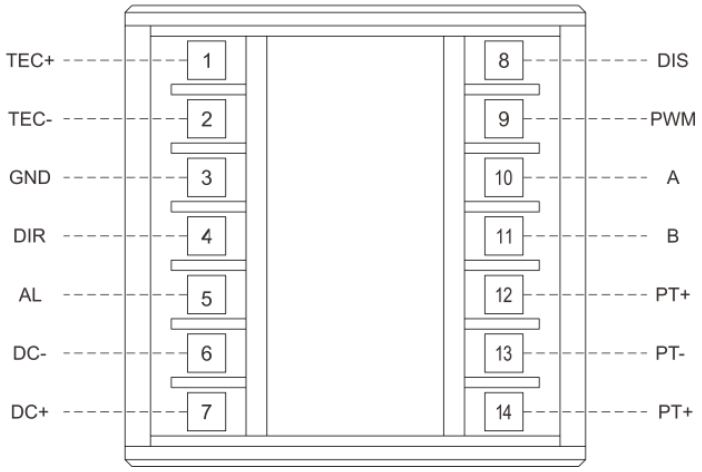


Sign	A	B	C	D	E
Size (mm)	72	72	8.8	65.2	68

Recommended size of installation holes：（$68_{+0.5}$）x（$68_{+0.5}$）mm

Control module electrical schematic

FCSE12131-1D01



Wiring instructions

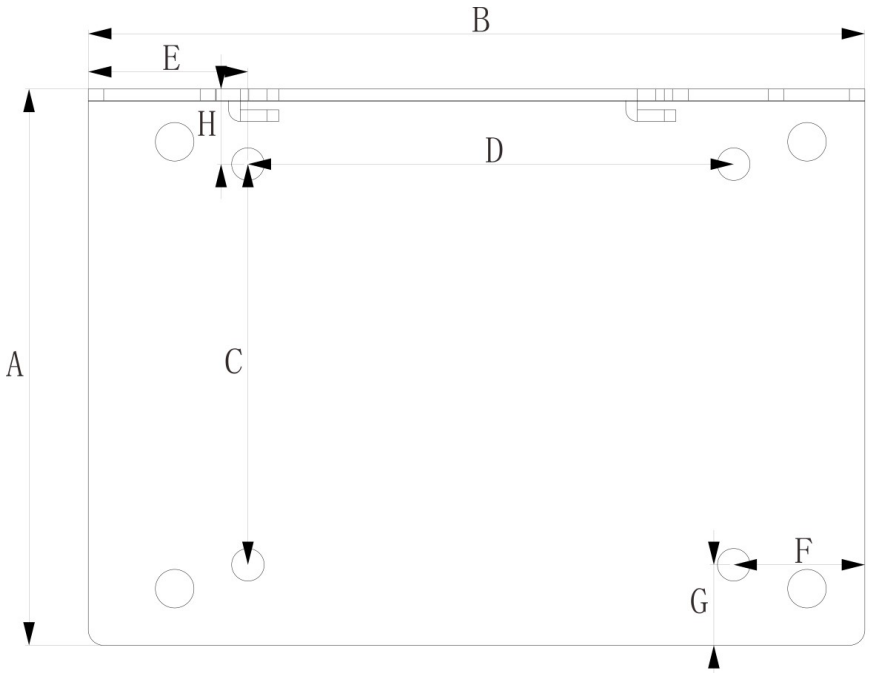
Power line connection	6-7 pins connect DC5~12V input, pay attention to distinguish between positive and negative;
TEC line connection	1-2 pins connect TEC, pay attention to distinguish between positive and negative;
Alarm output connection	3、5 pins connect alarm output, connect from GND when alarm occurs;
Expand execution module connection	3、4、8、9 pin connect connect the expansion executive module, and need to be increased when the current exceeds 10A;
Communication line connection	10-11 pins connect the RS485 communication cable, pay attention to distinguish positive and negative;
Temperature sensor connection	12-14 pins connect 3 wire RTD temperature sensor，13-14 pins can be separately connected to 2-wire temperature sensor NTC/TC.

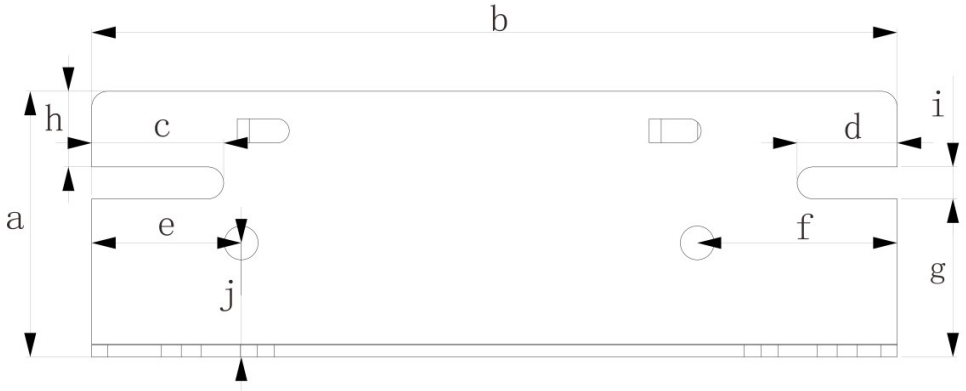
Extended executive module basic technical parameters

Expand execution model	FCSE122E1-1D01
TEC input/output voltage	5~12V
TEC drive current	0~20A ※2

※2： When the current requirement is less than 10A, the control module can be used separately. When the current requirement is more than 10A, the control module + extended executive module can be used separately.

Extended executive module size



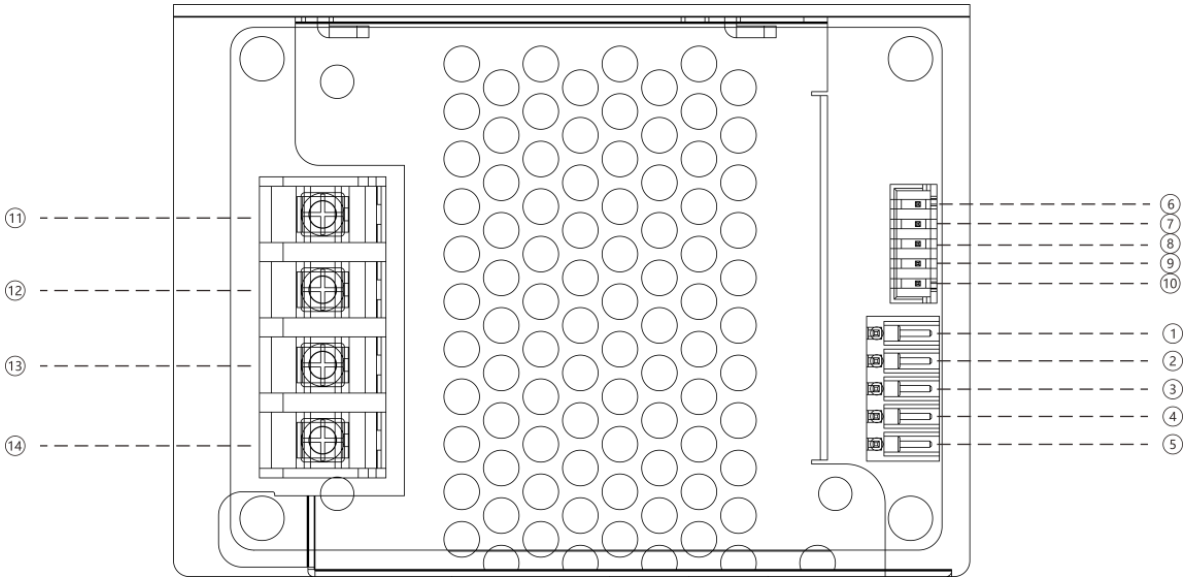


Sign	A	B	C	D	E	F	G	H
Size (mm)	72.2	100.7	52	63	20.7	17	10.45	9.75

Sign	a	b	c	d	e	f	g	h	i	j
Size (mm)	33.2	100.7	16.5	12.5	18.7	25	19.75	9.45	4	14.25

To the bottom for reference.

Extended executive module electrical schematic



Labels correspond to pins

1/10	DIR	11	TEC-
2/9	PWM	12	TEC+
3/8	DIS	13	DC-
4/7	GND	14	DC+
5/6	DC+		

Wiring instructions

Power line connection	13-14 pins connect DC5~12V power input, pay attention to distinguish positive and negative;
Control line connection	1-5 （or 6-10） pins connect control module;
TEC connection	11-12 pins connect TEC, pay attention to distinguish positive and negative.