E4T Series
multifunctional converter
Operation Guide

Thanks for purchasing our E4T Series multifunctional converter. Please do read the manual before use the meter so that you could make a complete acknowledge of our product and operate it correctly. We will not inform you especially if any modification made.

1 Meter function and characteristics

Function

It specialized in display, transmission, control and all series of sensor signals. in many industrial occasions, it requests to monitor the scene of various variables, such as temperature ,humidity, pressure and flow. These parameters can be measured through various sensors, but it can not complete the subsequent display, convert and controls. and the converter can do these ,through digital display to show the direct parameter; through signal to convert module and convert all kinds of physical signals into universal signals. For examples :4~20mA output, can transfer to be used by subsequent equipment; it uses PID output to control all kinds of actuators, such as SSR,SCR … and also you can select RS-485 or Modbus to connect with computer or man-machine interface

Characteristics

1.DIN track installation or panel installation
2.Complete input signal varieties: thermocouple, thermal resistance, DC4-20m A current
3.Capable of collecting various analog signals on industrial occasionsto be converted into standard signal output
4.Measurement values can be compared with set values to make different alarm output and control output
5.RS485 communication functions, capable of forming trends, and directly connecting PC an contact screen
6.Input and output full optical couple isolation
7.Double 4-20m A output

2 Attention

⚠Dangerous

1. Attention! Dangerous to sense!
2. Do not touch the power terminal after supply AC power, in order to avoid electric shocks.
3. When connect with Instrument power, please make sure to power off!

⚠ Admonition

1. Please make sure of terminal position is correct before AC power supply, in order to avoid of serious damage.
2. Please pre-determined power supply voltage and instrument specifications (AC85~265V or DC24V) correspond, in order to avoid of serious damage.
3. Please confirm receipt of proper use of wiring (Input, Output, Alarm) terminals.
4. The Maxmum torgue of terminal 8kgm.
5. Please do not be installed under the conditions of easy to interfere, corrosive gases, high temperature and humidity.
6. To avoid other interference, please keep the power wires supplied distance from power wire and load wire.
7. When the input sensors is T/C, if necessary to extend the lead wire, Please use compensation wire according to the T/C.
8. When input the sensor is RTD, if we need to extend the lead wire, please use smaller impedance value, and the same wire.

3 Model identification

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Item	Code
DIN Size: H48×W48mm	E4T

Main output	Code
No	0
Relay	1
SSR pulse	2
4~20mA	3
Other linear singals	4

Alarm	Code
No	0
One alarm	1
Two alarm	2

Transmission	Code
No	0
PV DC4-20mA (1 Nos.)	1
PV DC4-20mA (2 Nos.)	2
SV DC4-20mA (1 Nos.)	3
SV DC4-20mA (1 Nos.)	4
Other linear signal	5

Input signal	Code
TC	1
PT100	2
CU50	3
DC4-20mA	4
Other linear signal	5

Communication	Code
No	0
RS-485	1
Modbus	2

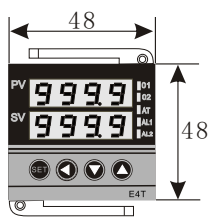
Pin	Code
8 pin base	8
11 pin base	11

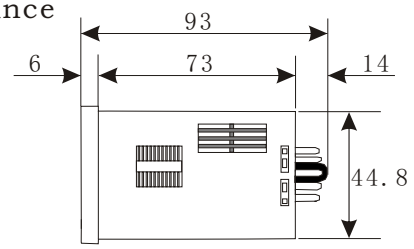
*NOTE · 8 P base convert, which has single output terminal and used as main output, alarm output, transmission output, communication output ; but only select one group output .
· 11 P base convert, which has double output terminals and used as main output, alarm output, transmission output, communication output ; but only select 2 groups output .
· When you request other types of linear signals, such as0-20m A, 1-5V, 0-50mV etc. please specify when ordering.
· When you request non-DC4-20m A output signal ,please specify when ordering.

4 Dimension and Panel cutout

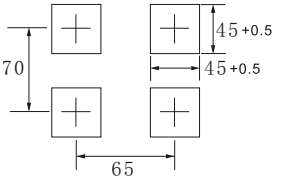
■ E4T

Appearance





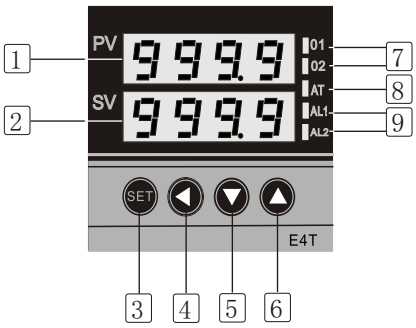
Dimension



(unit: mm)

5 Operation instruction

■ E4T

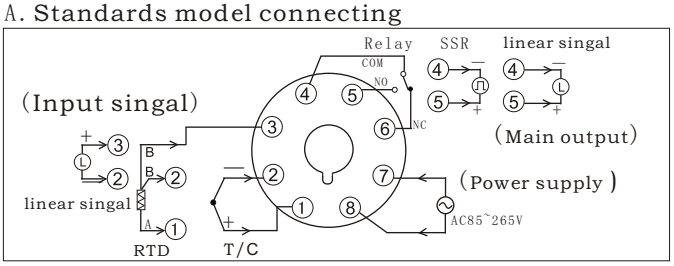


Item	Name	Function
1	PV/parameter indicator	Display sense value/ parameter (0.28 inch Red LED indicator)
2	SV/ parameter indicator	Display sense value/ parameter (0.28 inch Red LED indicator)
3	SET key	when finish to set value press SET key; When shift display parameter press SET key
4	Shift key	Move SV value digit (1digit , 2digit,3digit,4digit for a circle)
5	Down key	Reduce SV
6	Up key	Add SV
7	Output indicator (01 and 02)	when output , response to indicator is blinking (green LED)
8	AT key	when Auto-tuning , response to indicator is blinking (yellow LED)
9	AL1/AL2 key	when alarm output , response to indicator is blinking (red LED)

6 Connecting

◉ 8 pin base

A. Standards model connecting

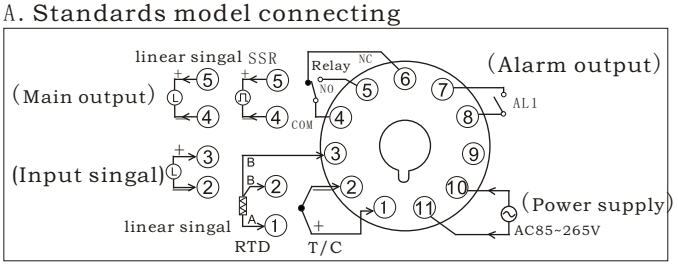


B.Special model connecting

Alarm output	Transmission output	Communication
COM, NO, NC, AL1	DC4~20mA, No.1 transmission output	R+, T-, RS-485 or ModBus

◉ 11 pin base

A. Standards model connecting

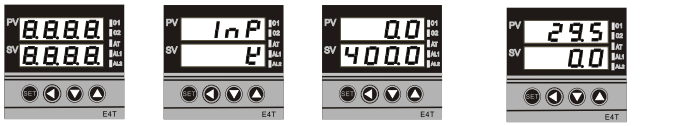


B.Special model connecting

Alarm2 output	Transmission output		Communication
COM, NO, NC, AL2	DC4~20mA, No.1 transmission output	DC4~20mA, No.2 transmission output	T-, R+, RS-485 or ModBus

7 Operation instruction

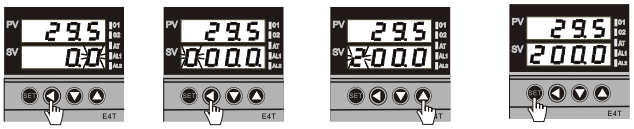
1、Start up after power supply, operate as following :



LED and indicator will blink | Indicate input signal types (k) | Indicate upperand lower limitatio n scope (0.0-400.0) | Start to use : upper is PV lower indicate SV

2.Set up SV

For instance : when SV=200, operate as following ;

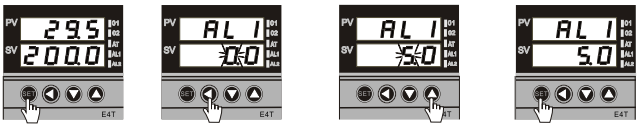


press lower-shift key, 1st digit start blinking in SV | then press shift key , shift to 4th digit | press lower-add key, add to SV =200.0 | press SET key to set SV

3.Set up alarm mode

For instance: when PV >SV “5” as AL1 ,

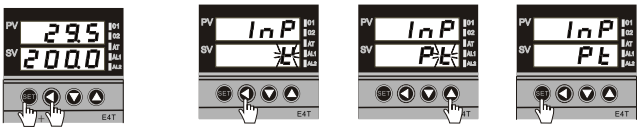
*Note : when AD1=0, deviation high alarm.



Press SET key shift into AL1 item | then press shift key , shift into 2ed digit | press lower-add key , add the alarm error value | press SET key to set alarm value

4.Selecting types of input signals

For instance : when you request to change input (k) type T/C into PT100 signal



Press shift key and SET key synchronously enter LEVEL3 flow | press shift key , the value starts blinking in INP item | press add key and change input signal into PT | press SET key to set revised signal

*Note: 1.when you change the type of signal , response to adjust the terminal wire.
2.You can operate directly, because it have calibrated for T/C and PT100 .

8 Index table

Signal type index

Type	Code		Scope
T/C	K	E	0～1370 ℃ / 0～2192 ℉
	J	J	0～1200 ℃ / 0～2192 ℉
	E	E	0～1000 ℃ / 0～1832 ℉
	T	t	0～350 ℃ / 0～662 ℉
	R	r	0～1760 ℃ / 0～3216 ℉
	S	S	0～1760 ℃ / 0～3216 ℉
	B	b	0～1820 ℃ / 0～3308 ℉
RTD	Pt100	Pt	-199.9 ～600℃ / -199.9～999 ℉
	Cu50	Cu	-199.9 ～600℃ / -199.9～999 ℉
Linear signal	LN	Ln	Linear signal:4~20 mA,1~5V,0~5V 0~50mV,0~1V…

Error code index

Error code	Instruction	Possible cause
uuu 1	Input signal higher than USP	Check input signal Input signal out-of-range No input signal
-000	Input signal lower than LSP	Check input signal Input signal out-of-range No input signal
CJCE	Cold junction compensation failure	CJC diode broken CJC diode poor contact
uuuu	Broken thermal couple	Thermal couple broken
uuu2	Polar thermal connect incorrectly	Check connection

Alarm mode index

Code	Description	Code	Description
Ad=0	Deviation higt alarm AL>0 HY=0	Ad=5	Out-of-band alarm AL>0 HY=0
Ad=1	Deviation low alarm AL>0 HY=0	Ad=6	Deviation low alarm inhibit AL>0 HY=0
Ad=2	Absolute value high alarm AL is abslute value HY=0	Ad=7	Absolute low alarm inhibit AL is abslute value HY=0
Ad=3	Absolute value low alarm AL is abslute value HY=0	Ad=8	Thermal couple broken alarm Normal Thermal couple broken
Ad=4	In-band alarm AL>0 HY=0	Ad=10	Out-of band alarm inhibit AL>0 HY=0

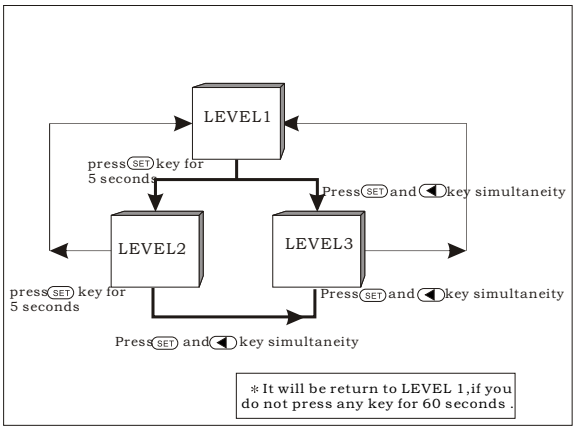
＊Note: AD=9, as alarm universal value. For example : when PV =SV, the relay will work after maintain 30 minutes .

9 Technical parameters

Power/ power consumption		AC 85~256V 50/60HZ power consumption : blow 5VA
Accuracy	Measurement	0.2% FS
	Controls	Under control of auto-tuning PID , PV= ±1
	Resolution	14 bit
	Sampling cycle	150 ms
Input signl	T/C	K,J,R,S,B,E,T…
	RTD	PT100, Cu50
	Linear signals	4-20mA,1~5V,0~20mA,0~10V,0~50mV …
Output signl	Relay contact	3A, 220V; longevity: 100，000times or more (under rated load)； work cycle : 15s.
	SSR pulse signal	SSR; ON:24V; OFF:0V; Max current :40mA; work cycle : 1s.
	Linear signal	4~20mA ,1~5V,2~10V.
Control model		PID,P,PI,PD,ON/OFF ; select suitable PID value through AT.
Alarm relay volume		3A,220V; longevity: 100，000times or more (under rated load)
Transmission	PV transfer	PV:DC4~20mA Transfer output , optional one or two groups signals output simultaneity.
	SV transfer	PV:DC4~20mA Transfer output , optional one or two groups signals output simultaneity.
Communication		RS-485 or ModBus
Operating ambience		0~50℃; 35~85%RH.
Weight		Approx :150g

10 Manipulation

There are 3 steps to operate , refer to set up an adjust description as following :



LEVEL1

29.5 / 200.0	PV/SV
SET	
oUt / 0.0	Output proportion display 0~100%
SET	
At / 0	AT 1:AT on 0: AT off.
SET	
AL 1 / 0.0	AL1 set range: -1999~9999
SET	
AL2 / 0.0	AL2 set range: -1999~9999
SET	
GAP / 0.0	Cooling SV1=SV=GAP
SET	
rAP / 0.0	RAP/RTM ramp temperature set
SET	
rt? / 0.0	RAP/RTM ramp time set
SET	

Return to PV/SV

LEVEL2

P / 3.0	Proportion band(%) p=0 is ON/OFF range :0~220%
SET	
I / 240.0	Integral 1 time (s) 1=0 OFF range: 0~3600s
SET	
d / 60.0	Differenticl coefficient 1 time (s) D=0 OFF range: 0~900s
SET	
oUd / 0	Output model selection 0: heating 1: cooling
SET	
HYS / 1.0	Hystersis set range : LSP~USP
SET	
CYt / 0 1S	AL1 mode set range :0~10
SET	
HY 1 / 0.0	Integral 2 time (s) 1=0 OFF range: 0~900s.
SET	
Ad 1 / 000	AL1 mode set range :0~10
SET	
HY2 / 0.0	Hystersis no.2 set range : LSP~USP
SET	
Ad2 / 000	AL1 mode set range :0~10
SET	
P 1 / 3.0	Proportion 2 band (%) p=0 is ON/OFF range :0~220%
SET	
.1 / 240.0	Integral 2 time (s) 1=0 OFF range: 0~3600s
SET	
d 1 / 60.0	Differenticl coefficient 2 time (s) D=0 OFF range: 0~900s
SET	
Ct 1 / 0 1S	Cycle time set 0: ma ouput 1 : SSR output
SET	
oUL / 0.0	Output low limit
SET	
oUH / 100.0	Output high limit
SET	
?An / 0	Parameter reserved
SET	
LCY / 000	Parameter locked LCK=010, LEVEL2 and LEVEL3 can be revised (except LCK)
SET	

Return to P.

LEVEL3

InP / Y	Input type set (refer to input index)
SET	
LSP / 0.0	Lower limit set range :-1999~9999
SET	
USP / 400.0	High limit set range :-1999~9999
SET	
AnL / 0.0	Input zero adjustment
SET	
AnH / 100.0	Input full-scale adjustment
SET	
CF / 0	Temperature unit exchange: o : ℃, 1: F
SET	
SFt / 0 1S	Input filter range:0~31
SET	
dP / 000.0	Decimal optional scope:1~3
SET	
CLo / 0.00	Output zero adjustment
SET	
CHo / 100.0	Output span adjustment
SET	
tC / 27S	T/C cooling temperature set
SET	
YC / 400.0	T/C cooling constant set
SET	
trL / 0.0	Transmission output lower limit set range :LSP~USP
SET	
trH / 100.0	Transmission output upper limit set range :LSP~USP
SET	
P-S / 0.0	PV compensatory range : -50~50
SET	
bAd / 0	Communication baud rate 0:9600 1:192000(ModBus)
SET	
Add / 000	Communication address range : 1~255
SET	
toP / 10.0	Factory calibrate only
SET	
Uo / 20.0	Factory calibrate only
SET	
Srt / 0.0	Highest temperature for dehumidify set SRT=0, function disable
SET	
LMo / 0.0	Output proportion of dehumidity LMO=0, function disable
SET	
rSL / 0	SV display 0: ON display, SV will up 1: OFF display , SV maintain
SET	
CL 1 / 0.00	Output 2 zero adjustment
SET	
CH 1 / 100.0	Output 2 full-scale adjustment
SET	
tH / 0	System parameter, forbid to adjust
SET	

Return to INP

Operation instruction :

▣Control set up

1, The convertor can be find out the best control parameter in auto-tuning, if it doesn't work perfectly ; such as P, I , D parameter.

2, When operation system can 't allow to over-tuning , for instance : when it does not allow to over temperature , you can raise temperature slope ; when set RAP.RT60/1, it will raise with 60 degree C /s, upto SV .

3, When operate system request to warm-up, you can set dehumidify function. For instance : set SRT/LMO=50/5, the convertor will output 5% power to demist and avoid to destroy .

▣Transmission set up

1, The convertor can transfer PV or SV through transmission module. For instance : transfer 2-200 degree C with the model of 4-20m A . you just need to set transmission output value, as TRL=0, TRH=200.

2, If you select two groups transmission output, it will response to isolate for them and transfer synchronously.

▣Alarm set up

1, The converter can select one or two group alarm relays output, and there are 3 relevant parameters: AL1/AL2, alarm model AD1/AD2 and error HY1/HY2.