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Registraton of design no. 0316273

ISO 9001:2008

CONOTEC® Digital Temperature Controller

CONOTEC CO., LTD. www.conotec.co.kr

Introduction manual FOX-2PD1

1 Caution for safety

Read carefully this instruction manual before use and use the product properly.

※ The specifications, appearance and dimension may be changed for improvement of performance without a prior notice

⚠ WARNING

1. This product is not made as a safety device, so when it is used for a control of devices feared to cause casualties, damages to the peripheral devices or huge property loss, the double safety devices should be arranged before use.
2. Avoid connecting lines, checking and repairing the products while power is supplied.
3. Connect power after making sure the terminal number.
4. Never disassemble modify, improve or repair the product.

⚠ CAUTIONS

- Be well-informed of how to use, safety regulations, warnings, etc before installation of this device and apply it to the extent of the defined specifications and relevant capacity without fail.
- Avoid wiring or installation to a motor or solenoid with a large inductive load.
- Use a shiled cable for extention of the sensor and ensure not to make it longer than the necessity.
- Ensure not to use the parts generating arc when switching at the same power source or near to it.
- Keep the power cable away from a high-tention power line and ensure not to install it at a place with serious oil and dirt.
- Avoid strong magnetic field or serious noise, vibration or impact.
- Keep away from the place where strong alkaline or acid material is directly released and use an independent pipe line.
- When it is installed at kitchen, ensure not to pour water directly over the product for cleaning.
- Keep the sensor cable away from signal line, power source, power line or loaded line and use an independent pipe line.
- Note that the mark of ⚠ in terminal connection diagram is the safety expression for warnings or cautions.
- Avoid using the product close to the device generating noises(high frequency welder, high frequency sewing machine, high frequency radio, large capacity SCR Controller, etc).
- The use in any way other than what is instructed by the manufacturer may cause injury or property loss.
- It is not a toy and keep it out of reach of children's hand.
- The installation of the device should be performed by an expert or a qualified personnel without fail.
- We shall not take any responsibility for the damage caused by non-compliance with the above-mentioned warnings or cautions or by any consumer's mistake.

⚠ DANGER

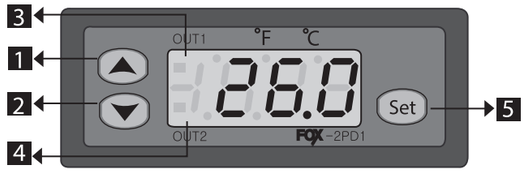
■ Attention, Danger related to electric shock

- Electric shock -Do not touch AC terminal during application of electric current. It may cause electric shock.
- Cut the power supply without fail during checking the input power.

2 Model

Model	Sensor	Controlled output	Temp.Range	Functions
FOX-2PD1	PT100Ω	Relay contact	°C : -199.9°C ~+400°C °F : -327°F~ 752°F	2-stage temp.contro Celsius, Fahrenheit Linked control Fixed control

3 Name of parts



1 UP switch
2 DOWN swtich
3 OUTPUT display 1
4 OUTPUT display 2
5 Function changing swtich

• User's mode changing(Temperature setting)

Set If press it once, the setting value is flickered.

▲ ▼ The value can be UP & DOWN with this key.

Set If press it once again, the setting value is memoriezed.

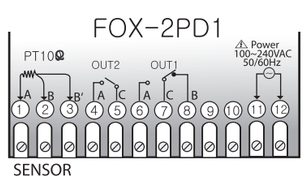
• Mode setting for user

Set A key to enter to installer mode if press for more than 5 sec. change with these keys. ▲ ▼

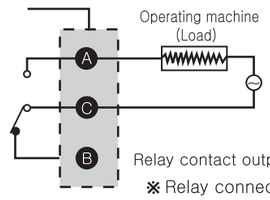
To change mode, press this key Set

※ After input of all setting values, it returns to present temperature after o-k message appeared.

4 Terminal connection diagram

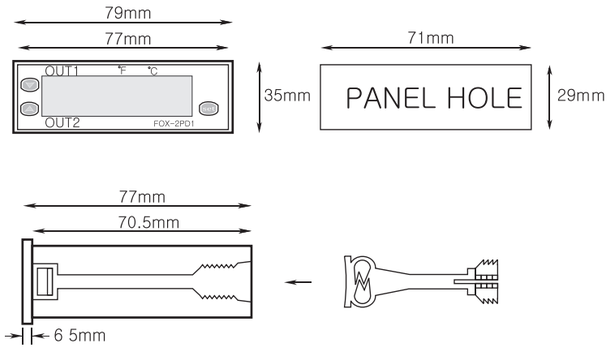


■ Relay connection example



※ Relay connection capacity is below 250VAC 2A. If use the load exceeding the contact capacity, be wary that it can be a reason of the contact fusion, contact inferiority, relay breakage etc.

5 Product exterior stand and panel dimension

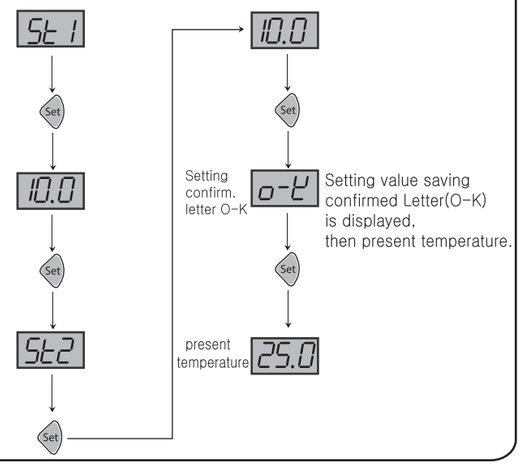


6 Setting range & setting value when shipment

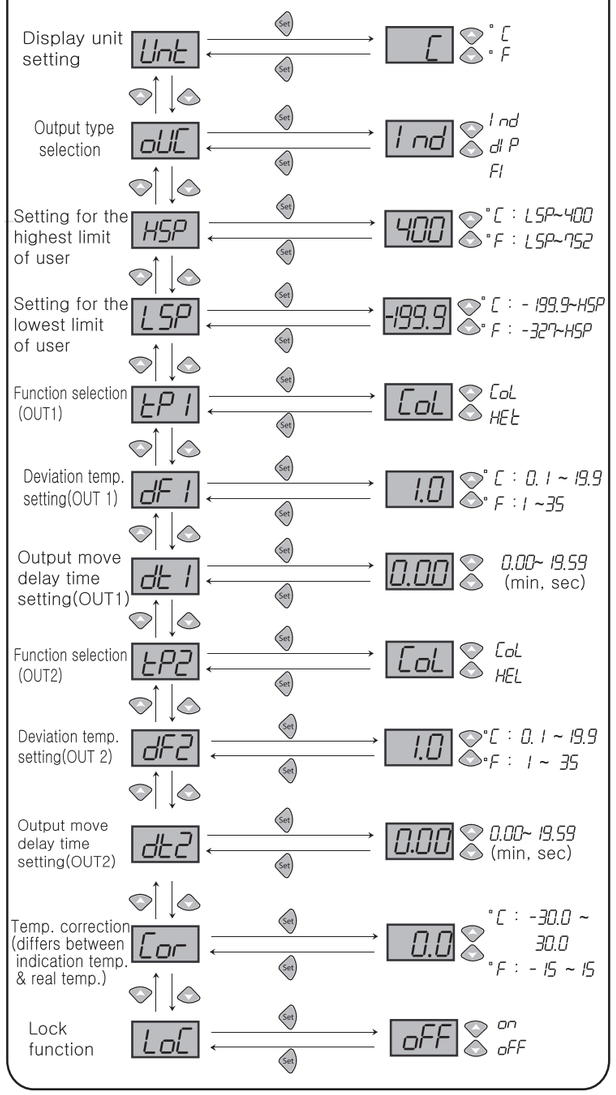
DISPLAY	FUNCTIONS	Range °C	Range °F	Set value at ship	REMARKS
St 1	Temp. setting	-199.9 ~ 400	-327 ~752	10.0	
St2	Temp. setting	-199.9 ~ 400	-327 ~752	10.0	
Unt	Temp. display unit	°C / °F		°C	°C celsius °F fahrenheit
oUt	Output type selection	Ind(independent type) dIP(Linked type) FI (Fixed type)		Ind	
HSP	User's setting temp. of highest point	LSP ~ 400	LSP ~ 752	400	Irrelevant to output
LSP	User's setting temp. lower limit point	-55.0 ~ -199.9	-327 ~ HSP	-199.9	Irrelevant to output
tP1	Function select(OUT1)	CoL / HEt		CoL	HEt : For heater CoL : For cooling
dF1	Deviation temp. setting (OUT1)	0.1 ~ 19.9	1 ~ 35	1.0	°C : 0.1 ~ 19.9 °F : 1 ~ 35
dt1	Output move delay time setting(OUT1)	0.00 ~ 19.59		0.00	min,sec
tP2	Function select(OUT2)	CoL / HEt		CoL	HEt : For heater CoL : For cooling
dF2	Deviation temp. setting (OUT2)	0.1 ~ 19.9	1 ~ 35	1.0	°C : 0.1 ~ 19.9 °F : 1 ~ 35
dt2	Output move delay time setting(OUT2)	0.00 ~ 19.59		0.00	min,sec
Cor	Temp. Correction	-30.0 ~ 30.0	-15 ~ 15	0.0	Differs correction between indication and real temp.
LoC	Lock function	on / oFF		oFF	on :Locking function setting oFF :Locking function lifting But, temp. setting is excepted.

7 Setting value change sequence

Temperature setting



Temperature program setting



8 Detailed function description

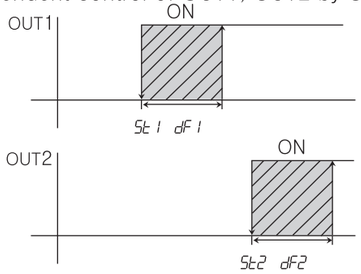
Unt : Indication unit change
°C : Indicates by Celsius
°F : Indicates by Fahrenheit
Caution : Once change the unit during movement, all setting values except **Unt** are changed to ex-work setting value.
Thus, reset the all setting values.

Indicates by Celsius : St1 : 10.0 St2 : 10.0 Unt : C oUC : Ind HSP : 400 LSP :- 199.9 tP1 : CoL dF1 : 1.0 dt1 : 0.00 tP2 : CoL dF2 : 1.0 dt2 : 0.00 Cor : 0.0 LoC : oFF

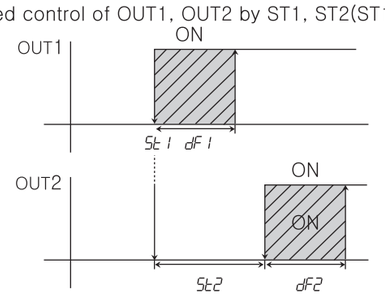
Indicates by Fahrenheit : St1 : 50 St2 : 50 Unt : F oUC : Ind HSP : 752 LSP :-327 tP1 : CoL dF1 : 1 dt1 : 0.00 tP2 : CoL dF2 : 1 dt2 : 0.00 Cor : 0 LoC : oFF

oUC : Ind(Independent type)
dUP(Linked type)
FI (Fixed type)
Output type selection

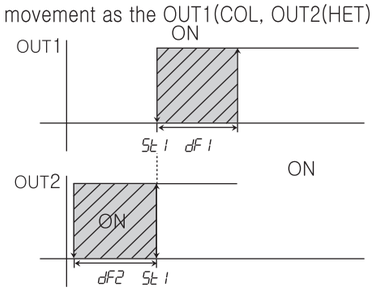
①IND(Independent type)
Independent control of OUT1, OUT2 by ST1, ST2



②DIP(Linked type)
Linked control of OUT1, OUT2 by ST1, ST2(ST1 + ST2)



③FI(Fixed type)
Fixed movement as the OUT1(COL, OUT2(HET) type by ST1.



HSP : User setting temperature upper limit point setting (maximum setting point allowed to final user).
It is impossible to set up the setting temperature value more than the HSP setting value.
ex)When set up the HSP = 25.0 ℃-> Setting temp. cannot be raised over than 25.0℃

LSP : User setting temperature lower limit point setting (minimum setting point allowed to final user).
It is impossible to set up the setting temperature value below than the LSP setting value.
setting point) When set up the LSP = 10.0℃ →Setting temp. cannot be dropped below than 10.0℃.

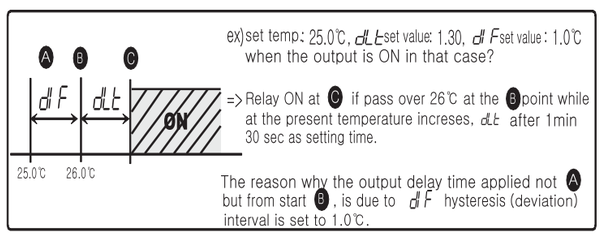
tP1 tP2 : OUT1, OUT2 output rating setting(cooling and heating selection function)
(OUT1)(OUT2) When select the CoL : use as a cooler
When select the HEt : use as a heater

dF1 (OUT1) **dF2** (OUT2)

: Deviation temperature setting
In the ON/OFF control, regular interval between ON and OFF is required (ON/OFF width setting)
If the ON and OFF are frequently too much activated, relay or other output contact point would be damaged quickly or hunting(power generating phenomenon, chattering) caused by exterior noise is generated.
Setting up and using the deviation temperature is the function to protect the contact point of the instrument and others etc.

dt1 (OUT1) **dt2** (OUT2)

: Output movement delay time
In case of operating the ON/OFF control very often.(cooler, compressor,etc)
To protect the operation machinery when re-input of the power supply or momentary stoppage of power supply.



ex) set temp: 25.0℃, dLt set value: 1.30, dF set value : 1.0℃ when the output is ON in that case?
=> Relay ON at C if pass over 26℃ at the B point while at the present temperature increses, dLt after 1min 30 sec as setting time.
The reason why the output delay time applied not A but from start B, is due to dF hysteresis (deviation) interval is set to 1.0℃.

Cor : Present temperature correction function
It is a function to correct when the error occurred on the sensor input from the outside and standard temperature (ex, mercury thermometer or presently using thermometer, temperature controoler) and temperature are different.

ex)Real temp. : 25.0℃
indication window : 28.0℃
※When there is 3℃ difference to the real temp.

➡ If correct the Cor from 0.0 -> -3.0, 25.0℃ is marked on the indication window.

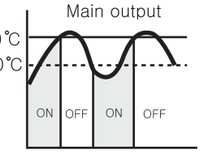
LoC : Program locking function setting
on : Program locking
oFF : Program locking lifting

■ Related products

	2001CC	2002CC	2003CC	2001TX	2000TX	2003TX	2000RX
temp. output	○	○	○	○	○	○	–
alarm output	–	○	–	–	○	–	–
defrosting output	–	–	○	–	–	○	–
fan output	–	–	○	–	–	○	–
Communi.	○	○	○	○	○	○	○

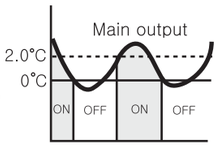
■ Example of using the temperature controller

ex1)
What is the temp. and program setting value when make the heater turn off at 30.0℃and operate at 25.0℃?



〈Temp. setting 〉(Refer to the temp.setting mode)
setting : 0.0 ℃
〈Program setting〉(Refer to the program setting mode)
tyP : HEt
dIS : P(one-side deviation, setting point OFF)
dIF : 5.0(Due to on/off interval is 5.0 ℃)

ex2)
What is the temp. and program setting value when make the cooler turn off at 0℃ and re-operate at 2.0℃?



<Temp. setting >(Refer to the temp.setting mode)
setting : 0.0℃
<Program setting>(Refer to the program setting mode)
tyP : C
dIS : P(one-side deviation,setting point OFF)
dIF : 2.0(Due to on/off interval is 2.0 ℃)

9 How to diagnose a breakdown

- Indicating ERROR on using items
- This Er-1 is the damage of memory data for various of inner-DATA due to be got nosied strongly from outside while using this items. Please request us A/S by return. Although our controller is designed as the complementary measures regarding these noise from outside, it is not endurable against these noise with endlessly.
- If noise(2KV) disordering become an inflow, the inner-part will be damaged.
- When shows these letter o-E(open error), S-E(short error) error in sensor.
- Please check sensor.

※ Above product's information can be changed to improve its quality without any notification.
When using this product, please observe the information of caution & warning due to give rise to disordering.

※ Regarding the English-language manual, please download it at o ur web-site.

■ H.Office : Ballyonsandan 1-ro, Jangan-eup, Gijang, Busan, Republic of Korea
■ Factory : Ballyonsandan 1-ro, Jangan-eup, Gijang, Busan, Republic of Korea

■ Tel : +82 (051) 819-0425~7
■ FAX : 82-51-819-4562

■ E-mail : conotec@conotec.co.kr
■ Homepage : www.conotec.co.kr

※ This device is suitable for following environment.
Surrounding temp.: 0℃ ~ 60℃
Surrounding humi.: Less than 80%Rh
Rated volt.: 220VAC ±10% 50/60Hz

■ Main products & developments
- Digital temp./humi. controller.
- Digital timer, Current/Volt meter
- Development of other product

MEMO

MEMO