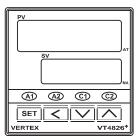
# INSTRUCTION MANUAL FOR VT26+ FUZZY PID

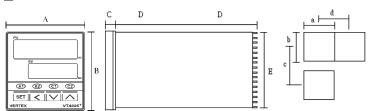
#### **■ FRONT PANEL DESCRIPTION**



- (1) PV Process Value
- (2) SV Setting Value
- (3) AT Auto tuning LED
- (4) MA Manual mode LED
- (5) A1 Alarm 1 LED
- (6) A2 Alarm 2 LED
- (7) C1 Control 1 LED
- (8) C2 Control 2 LED
- SET KEY. Press once to access the next programmable parameter. Press this key for 5 seconds to reset alarm timer.
- UP KEY. Press to increase the set point or parameter value.
- DOWN KEY. Press to decrease the set point or parameter value.
- SHIFT KEY. Press the shift key for 5 seconds to execute Auto Tune process (Yes. 1 mode)

  To abort the Yes. 1 Auto Tune process, press the shift key for 5 seconds.
- 5. **SET** Press the SET and UP keys once to return the normal operation.
- 6. SET LEVEL KEY. Press the SET and SHIFT keys simultaneously for 5 seconds to select programming level, then press SET key to enter this level.
- 7. Press the UP and DOWN keys simultaneously for 5 seconds to access "LnLo" and "LnHi" parameters.

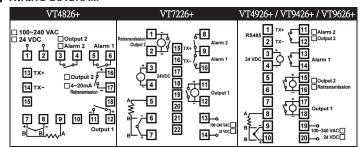
#### ■ PANEL CUTOUT



Model	Α	В	С	D	E	а	b	С	d
VT-4826+	48	48	6	100	45	45+0.5	45+0.5	60	48
VT-7226+	72	72	9	80	67	68+0.5	68+0.5	90	72
VT-4926+	48	96	9	80	91	45+0.5	92+0.5	120	48
VT-9426+	96	48	9	80	45	92+0.5	45+0.5	48	120
VT-9626+	96	96	10	80	91	92+0.5	92+0.5	120	96

(Unit:mm)

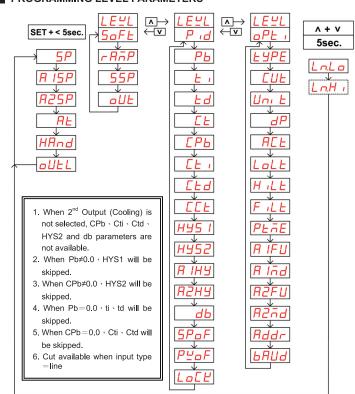
#### **■ WIRING DIAGRAM**



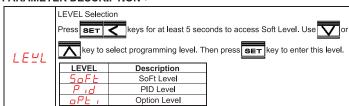
## **■ WIRING PRECAUTIONS**

- 1. Before wiring, verify the controller label for correct model number and option.
- 2. For thermocouple input, use the appropriate compensation wire. And note the polarity of input
- To avoid noise induction, keep input signal wire away from instrument power line, load lines and power lines of other electric equipment.

#### **■ PROGRAMMING LEVEL PARAMETERS**



#### ■ PARAMETER DESCRIPTION:



## **USER LEVEL**

Code	Description		Range	Default
5P	Set point value of control		LoLt - HiLt	500
A 15P	Alarm 1 set point value/Timer set value while A1FU is set to T.on or T. off, the unit can be HH.MM or MM.SS. It depends on the "P.tnE" parameter.		-1999 - 9999/ 00.00~99.59	10
A25P	Alarm 2 set point value/ Timer set value while A2FU is set to T.on or T. off, the unit can be HH.MM or MM.SS. It depends on the "P.tnE" parameter.		-1999 - 9999/ 00.00~99.59	10
ЯŁ	Autotune	2 Auto-tuning is disable 25. I: Standard type auto-tuning. PV is compared wit SV during auto tuning. PV is compared with SV-10%FS during Auto-tuning.	по УЕБ. I УЕБ.2	no
HAnd	Manual control	☐☐: Disable the manual mode	no YES	no
oUEL	Output percentage. Adjustable when "Hand" is set to "Yes"		-100.0 - 100.0	100.0

# SOFT LEVEL

Code	Description	Range	Default
	Ramp rate for the process value to limit an abrupt Change of process.( °C/min.)	0 <b>-</b> 9999 (0.0 <b>-</b> 999.9)	0.0
5.5 P	Set point value of soft-start	LoLt - HiLt	0
оUŁ	Output percentage of soft-start	0.0 - 100.0	100.0

## PID LEVEL

Code	Description	Range	Default
РЬ	Proportional band variable. Set to 0.0 for ON/OFF control mode.	0.0-300.0%	10.0
E i	Integral time (Reset). This value is automatically calculated by activating the Autotune function. If desired, the user can later adjust this parameter to better suit the application. When PB=0.0, this parameter will be not available. When set to zero, Pb & td $\neq$ 0 for PD control.	0-3600sec	240
Еd	Derivative (Rate). This value is automatically calculated by activating the Auto tune function. If desired, the user can later adjust this parameter to better suit the application. When PB=0.0, this parameter will be not available. When set to zero, Pb & td $\neq$ 0 for PI control.	0-900sec	60
ΕĿ	Proportional cycle time of output 1.	0-100sec	15
ЕРЬ	Proportional band variable for secondary control output (cooling). Set 0.0 for ON/OFF.	0.0-300.0%	10.0
EE ,	Integral time for secondary control output. When CPb=0.0, this parameter will be not available. When set to zero, CPb & Ctd $\neq$ 0 for PD control.	0-3600sec	240
СЕВ	Derivative time for secondary control output. When CPb=0.0, this parameter will be not available. When set to zero, CPb & Cti ≠ 0 for PI control.	0-900sec	60
EEE	Proportional cycle time of output 2.	0-100sec	15
H95 I	Hysteresis for ON/OFF control on output 1.	0-2000 (0.0-200.0)	1
H952	Hysteresis for ON/OFF control on output 2.	0-2000 (0.0-200.0)	1
A IHY	Hysteresis of alarm 1.	0-2000	1
R2H4	Hysteresis of alarm 2.	0-2000	1
dЬ	Dead band value. This defines the area in which output 1 and output 2 are both active (negative value) or the area in which output 1 and output 2 are both inactive (positive value).	-1000-1000 (-100.0-100.0)	0
5PoF	Set point offset. This value will be added to SV to perform control. It mainly used to eliminate offset error during P control.	-1000-1000 (-100.0-100.0)	0
PYaF	Process value offset. Permits the user to offset the PV indication from the actual PV.	-1000-2000 (-100.0-200.0)	0
LoCY	Parameter lock. This security feature locks out selected levels or single parameters prohibiting tampering and inadvertent programming changes.  O000 All parameters are locked out. O001 Only SP is adjustable O010 Only USER level is adjustable O011 USER and PID levels are adjustable. O100 USER,PID,OPTI levels are adjustable. O101 USER,SOFT,PID,OPTI levels are adjustable. O101~0111 All parameters in all levels are opened. 1000~0101,1011=0011,1100=0100 but Output 2 is opened.		0100

## **OPTION LEVEL**

Default   Description   Range   Default	OPTION	LEVEL						
TYPE	Code		Description		Range	Default		
J		Input type sel	lection.					
Refer to figure.   Refer to figure.   Refer to figure.		TYPE	RANGE(°C)	RANGE(°F)				
### ### ##############################		J	-50~1000					
E		K						
B 0-1800 32-3272 Refer to figure.  R -50-1750 -58-3182 S -50-1750 -58-3182 N -50-1300 -58-3272 C -50-1800 -58-3272 D-PT -200-850 -328-1562 J-PT -200-850 -328-1562 J-PT -200-600 -328-1112 LINE -1999-9939  Used to specify the process value when linear input (type=line) signal is out of range. None: this function is not used. Lo = The process value will be limited to HiLt when input signal is lower than the scale range. Hi = The process value will be limited to HiLt when input signal is in higher than the scale range. Lo.Hi = The process value will be limited to Hilt when input signal is in higher than the scale range. Lo.Hi = The process value will be limited to Hilt when input signal is higher than the scale range. Lo.Hi = The process value will be limited to Hilt when input signal is higher than the scale range. Lo.Hi = The process value will be limited to Hilt when input signal is higher than the scale range. Lo.Hi = The process value will be limited to Hilt when input signal is higher than the scale range. Lo.Hi = The process value will be limited to Hilt when input signal is higher than the scale range. Lo.Hi = The process value will be limited to Hilt when input signal is out of scale.  Unit of process value will be limited to Hilt when input signal is higher than the scale range. Lo.Hill process value will be limited to Hilt when input signal is higher than the scale range.  PEDI : Degrees C. F: Degree C. F: Degrees C. F: Degree C. F: D		Т		<del>-</del> 454~752				
Refer to Inguire.  R								
S	LUPE				Refer to figure	k		
N   50-1300   -58-2372   C   C   -50-1800   -58-3372   D-PT   -200-850   -328-1562   J-PT   -200-600   -328-1112   LINE   -1999-9999   LINE   LINE   -1999-9999   LINE   LINE   LINE   LINE   LINE   -1999-9999   LINE	LJIL				ixelei to ligure.	I N		
C 50-1800 -58-3272 D-PT -200-850 -328-1562 J-PT -200-850 -328-1112 LINE 1-1999-9999  Used to specify the process value when linear input (type=line) signal is out of range. None- this function is not used. Lo = The process value will be limited to LoLt when input signal is lower than the scale range. Hi = The process value will be limited to HiLt when input signal is higher than the scale range. Lo-Hi = The process value will be limited to HiLt when input signal is higher than the scale range. Lo-Hi = The process value will be limit within the range of LoLt to HiLt when input signal is out of scale.  Unit of process value  C : Degrees C. DF : Degrees C. DF : Degrees C. DF : Degrees F. D : Engineer unit for linear input.  Decimal point selection. 0000 : 0.01 resolution, used for linear input only. 0.000 : 0.01 resolution, used for linear input only. After change decimal point, please reconfirm the parameter.  Output 1 control action.  F L : Reverse action for heating. D : Direct action for cooling.  Lo Le Low limit of span or range. Set the low limit lower than the lowest expected SV and PV display.  High limit of span or range. Set the high limit higher than highest expected SV and PV display.  F : L Software filter.  PL = Time scale for timer alarm.  PL = Time scale for timer alarm function section for detail.  If Aff U=None, it means alarm function is cancelled.  R = Time Alarm 1 mode. Refer to alarm mode section for detail.  R = Time Alarm 2 function. Refer to alarm function section for detail.  R = Time Alarm 2 function. Refer to alarm function is cancelled.  R = Time C = Time Scale for timer alarm function is cancelled.  R = Time C = Time Scale for timer alarm function is cancelled.  R = Time C = Time Scale for timer alarm function is cancelled.  R = Time C = Time Scale for timer alarm function section for detail.  R = Time C = Time Scale								
D-PT   -200-850   -328-1562   J-PT   -200-800   -328-1112   LINE   -1999-9999								
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Lo Hi = The process value will be limit within the range of LoLt to Hilt when input signal is out of scale.  Unit of process value  Linit become continued by the limit within the range of LoLt to Hilt when input signal is out of scale.  Unit of process value  Linit become continued by the limit of linear input.  Decimal point selection.  0000 : Decimal point selection.  0000 : 0.00 : No decimal point.  0000 : 0.00 : No decimal point.  0000 : 0.00 : 0.00 : resolution, used for linear input only.  After change decimal point, please reconfirm the parameter.  Output 1 control action.  FEL : Reverse action for heating.  Dir : Direct action for cooling.  Lou Linit of span or range. Set the low limit lower than the lowest expected SV and PV display.  High limit of span or range. Set the high limit higher than highest expected SV and PV display.  High limit of span or range. Set the high limit higher than highest expected SV and PV display.  Filt Software filter.  Dougle for timer alarm.  PLATE High limit of span or range. Set the high limit higher than highest expected SV and PV display.  Filt Software filter.  Dougle for timer alarm.  PLATE High limit of span or range. Set the high limit higher than highest expected SV and PV display.  Filt Software filter.  Dougle for timer alarm.  PLATE High limit of span or range. Set the high limit higher than highest expected SV and PV display.  Filt Roll range 1000  Filt Roll range 1000  Alarm 1 function. Refer to alarm function section for detail.  Alarm 2 function. Refer to alarm function section for detail.  Alarm 2 function. Refer to alarm function section for detail.  Alarm 2 function. Refer to alarm function section for detail.  Alarm 2 function. Refer to alarm mode section for detail.  Alarm 2 function. Refer to alarm mode section for detail.  Alarm 2 function. Refer to alarm mode section for detail.  Alarm 2 mode. Refer to alarm mode section for detail.  Alarm 2 mode. Refer to alarm mode section for detail.  Alarm 2 mode. Refer to alarm mode section for detail.  Communi								
of LoLt to HiLt when input signal is out of scale.  Unit of process value  Lot is pegrees C.  F: Degrees F.  End:  Begineer unit for linear input.  Decimal point selection. 0000: No decimal point. 000.0: 0.1 resolution used for linear input only. 0.000: 0.001 resolution, used for linear input only. After change decimal point, please reconfirm the parameter.  Output 1 control action.  FEU: Reverse action for heating.  In: Direct action for cooling.  Low limit of span or range. Set the low limit lower than the lowest expected SV and PV display.  FILE Software filter.  FILE Software filter.  Time scale for timer alarm.  PLEE HHONS: Minutes: Seconds  Alarm 1 function. Refer to alarm function section for detail.  Alarm 2 function. Refer to alarm mode section for detail.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function section for detail.  Alarm 2 mode. Refer to alarm function is cancelled.  Address of controller when communication with master device.  Communication baud rate. 2.4k=2400bps, 4.8k=4800  2.4k, 4.8k								
Unit of process value    C   Degrees C.   Degrees C.   Degrees F.   De								
Decimal point selection.  O000: No decimal point.  O000: No decimal point.  O000: 0.01 resolution, used for linear input only.  After change decimal point, please reconfirm the parameter.  Output 1 control action.  FEU: Reverse action for heating.  In: Direct action for cooling.  Lou Limit of span or range. Set the low limit lower than the lowest expected SV and PV display.  High limit of span or range. Set the high limit higher than highest expected SV and PV display.  FILE Software filter.  PLAE  Alarm 1 function. Refer to alarm function section for detail.  Alarm 2 function. Refer to alarm mode section for detail.  RAFU Alarm 2 mode. Refer to alarm mode section for detail.  RAGPU Alarm 2 mode. Refer to alarm mode section for detail.  RAGPU Address of controller when communication with master device.  Communication baud rate. 2.4k=2400bps, 4.8k=4800  O000				out of scale.				
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0.000 : 0.001 resolution, used for linear input only. After change decimal point, please reconfirm the parameter.  Output 1 control action.  FEU: Reverse action for heating.  Ior: Direct action for cooling.  Low limit of span or range. Set the low limit lower than the lowest expected SV and PV display.  High limit of span or range. Set the high limit higher than highest expected SV and PV display.  FILE Software filter.  PLEE Minutes: Software filter.  PLEE Minutes: Software filter.  O.00-99.9  10.0  Refer to alarm function. Refer to alarm function section for detail.  If A1FU=None, it means alarm function is cancelled.  Alarm 1 mode. Refer to alarm mode section for detail.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 3 function. Refer to alarm function is cancelled.  Alarm 4 function. Refer to alarm function is cancelled.  Alarm 5 function. Refer to alarm function is cancelled.  Alarm 6 function. Refer to alarm function is cancelled.  Alarm 7 function. Refer to alarm function is cancelled.  Alarm 8 function. Refer to alarm function is cancelled.  Alarm 9 function. Refer to alarm function is cancelled.  Alarm 1 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancel	l dP	00.00 : 0.01 i	resolution, used for lin	ear input only.		0000		
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High limit of span or range. Set the high limit higher than highest expected SV and PV display.  File Software filter.  Time scale for timer alarm.  HHnn Hours: Minutes;  nn.55 Minutes: Seconds  Alarm 1 function. Refer to alarm function section for detail.  If A1FU=None, it means alarm function is cancelled.  Alarm 2 function. Refer to alarm function section for detail.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function section for detail.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 2 function. Refer to alarm function is cancelled.  Alarm 3 function. Refer to alarm function is cancelled.  Alarm 4 function. Refer to alarm function is cancelled.  Alarm 5 function.  Before to alarm function for detail.  Alarm 6 function section for detail.  Alarm 7 function section for detail.  Alarm 8 function section for detail.  Alarm 9 function section function section for detail.  Alarm 1 function Refer to alarm function is cancelled.  Before to alarm function section for detail.  Communication baud rate. 2.4k=2400bps, 4.8k=4800  2.4k, 4.8k	LoLE	Low limit of s	span or range. Set the	low limit lower than	Full range	0		
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Time scale for timer alarm.  P.E. T.E. Human Hours: Minutes;  7.7.55 Minutes: Seconds  Alarm 1 function. Refer to alarm function section for detail. If A1FU=None, it means alarm function is cancelled.  P.E. T.E. Human Hours: Minutes: Marm 1 function. Refer to alarm function is cancelled.  P.E. T.E. Human Hours: Minutes: Marm 1 mode. Refer to alarm mode section for detail. If A2FU=None, it means alarm function section for detail if A2FU=None, it means alarm function is cancelled.  P.E. T.E. Human Hours: Marm 1 mode. Refer to alarm function is cancelled.  P.E. T.E. Human Hours: Marm 1 mode. Refer to alarm function is cancelled.  P.E. T.E. Human Hours: Marm 1 mode. Refer to alarm function is cancelled.  P.E. T.E. Human Hours: Marm 1 mode. Refer to alarm mode section for detail.  P.E. T.E. Human Hours: Marm 1 mode. Refer to alarm mode section for detail.  P.E. T.E. Human Hours: Marm 1 mode. Refer to alarm mode section for detail.  P.E. T.E. Human Hours: Marm 1 mode. Refer to alarm function with master device.  D. T.E. Human Hours: Marm 1 mode. Refer to alarm function with master device.  D. T.E. Human Hours: Marm 1 mode. Refer to alarm function with master device.  D. T.E. Human Hours: Marm 1 mode. Refer to alarm function with master device.  D. T.E. Human Hours: Marm 1 mode. Refer to alarm function with master device.  D. T.E. Human Hours: Marm 1 mode. Refer to alarm function with master device.  D. T.E. Human Hours: Marm 1 mode. Refer to alarm function with master device.  D. T.E. Human Hours: Marm 1 mode. Refer to alarm function with master device.  D. T.E. Human Hours: Marm 1 mode. Refer to alarm function with master device.  D. D. T.E. Human Hours: Marm 1 mode. Refer to alarm function with master device.  D. D				ay.	0.00.0	10.0		
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	BRUd					9.6k		
		1000, 0.00, 0000 upo, 10.2n-10200 upo   0.00, 10.2n						

Code	Description	Range	Default
LnLo	Low Scale of Linear Input	-1999~9999(-199.9~999.9)	0.0
LnHi	High Scale of Linear Input	-1999~9999(-199.9~999.9)	100.0

## Scaling for Linear Input

- 1. Press the UP and DOWN keys simultaneously for 5 seconds to access "LnLo" parameter.
- 2. Adjust "LnLo" setting to correspond the low scale and after adjustment press set wey once to access "LnHi" parameter.
- 3. Adjust "LnHi" setting to correspond the high scale and after adjustment press SET key once for normal operation.



#### ALARM FUNCTION

#### Select the alarm function

nonE - Alarm action off.

Hi – Process high alarm with Form A contact Lo – Process low alarm with Form A contact diF.H – Deviation high alarm with Form A contact

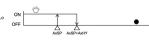
diF.L – Deviation low alarm with Form A contact bd.Hi – Deviation band high alarm with Form A contact

bd.Lo – Deviation band low alarm with Form A contact

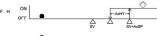
t.on – On-timer with Form A contact t.oFF – Off-timer with Form A contact

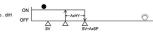
HI OFF

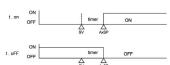
AISP-AISTY AISP











b noE - Alarm action off

b.Hi – Process high alarm with Form B contact

b.Lo – Process low alarm with Form B contact

b.diH – Deviation high alarm with Form B contact

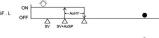
b.diL - Deviation low alarm with Form B contact

contact

b.bdL – Deviation band low alarm with Form B contact

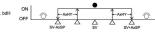
b.ton – On-timer with Form B contact

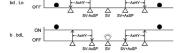
b.toF - Off-timer with Form B contact

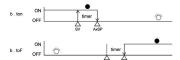












# ■ ALARM MODE

A1MD/A2MD	DESCRIPTION		
nonE	Normal alarm mode/ When timer function is selected, PV <sv available.<="" function="" is="" not="" td="" timer=""></sv>		
5Ed9	Standby mode When selected, in any alarm function, prevents an alarm power on. The alarm is enabled only when the process value reach alarm point. Also known as "Startup inhibit" and is useful for avoiding alarm t during startup.		
Latch mode. When selected, the alarm output and indicator latch as the occurs. The alarm output and indicator will be energized even if the condition has been cleared unless the power is shut off.  When Timer function is selected, PV< SV timer function is available.			
SEL R	Standby and latch mode		

# ■ AUTOMATIC AND MANUAL OUTPUT CONTROL

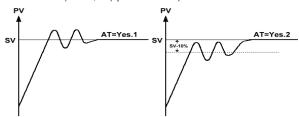
Automatic control is the normal mode of controller operation. In automatic control mode the controller automatically adjust the control output percentage by PID algorithm so that the PV=SV. The PID parameter Pb, Ti and Td can be also calculated by Auto Tune procedure. Manual control allows the user to manually drive the output percentage from 0.0 to 100.0%. To access the manual mode, set the "HPmd" "parameter to "JE5", the rightmost decimal (MA) on SV display will flash. Then the "DUEL" parameter will display alternately "DUEL" and process value. The output percentage then can be adjusted by pressing UP or DOWN key. To abort the manual control just simply set the "HPmd" to "DUEL".

## AUTO TUNE

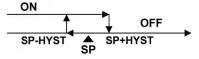
In order to automatically set the PID parameter in PID level ("Pb" proportional band, "ti: integral time or reset and "td" derivative time or rate), first adjust the controller's set point to a value, which closely approximates your application. Set the "  $\overrightarrow{PL}$ " parameter to "  $\overrightarrow{JE}$  5. I" for standard type

auto tune or " "JE 5.2" for low PV type auto tune. The right-most decimal point (AT) on the PV display begins flashing. The auto tune procedure will take two cycle oscillations. After that, the controller performs PID control with the "learned" PID value to verify the results. Finally the PID values will be entered into the nonvolatile memory and then start the Fuzzy enhanced PID control. The auto tune process can last from several minutes up to two hours, depending on the system's parameter. A time out error will occur if the auto tune process can not be completed within two hours, in this case, try to set the PID parameters manually.

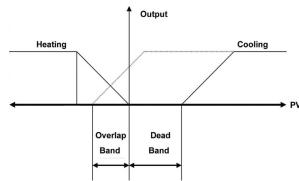
To abort an auto tune process, simply set the "  $\mathcal{A} \succeq$  " parameter to "  $\mathcal{A} \sqsubseteq$  ".



The controller can also be set to ON/OFF, PI, PD and P control mode. Set Pb = 0 for ON/OFF control mode. Set ti = 0 for PD control mode. Set td = 0 fro PI control mode and ti, td = 0 fro P control mode. The Hysteresis (dead band) 0f ON/OFF control can be set as follow:



When the second control output (output 2) is equipped the proportional band of output 2 and dead band are defined as follow:



#### **■ ERROR MESSAGE AND TROUBLESHOOTING**

Symptom	Probable	Solution
oPEn	-Sensor break error -Sensor not connected	-Replace sensor -Check the sensor is connected correctly
AdEr	-A/D converter damage	-Unit must be repaired or replacedCheck for outside source of damage such as transient voltage spikes.
ALEr	-Auto tune time out error	Set Pb, ti, td manually.
Keypad no function	-Keypads are locked -Keypads defective	-Set" L a L L "to a proper value -Replace keypads
Process value unstable	-Improper setting of Pb, Ti, Td and CT	-Start AT process to set Pb, Ti, Td automatically -Set Pb, Ti, Td manually
No heat or output	-No heater power or fuse open -Output device defective or incorrect output used	-Check output wiring and fuse -Replace output device
All LED's and display not light	-No power to controller -SMPS failure	-Check power lines connection -Replace SMPS
Process Value changed abnormally	-Electromagnetic Interference (EMI) or Radio Frequency Interference (RFI)	-Suppress arcing contacts in system to eliminate high voltage spike sources. Separate sensor and controller wiring from "dirty" power lines. Ground heaters
Entered data lost	-Fail to enter data to EEPROM	-Replace EEPROM

#### \* VERTEX 2015-A

VERTEX is constantly striving to improve its high-quality products, the information contained in this manual is subject to change without notice. Every precaution has been taken in the preparation of this manual.