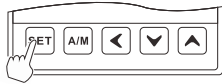


# Temperature controller with timer(B612 version)

## User manual

### 1.1 Engineering parameter level 1

Press SET key for 3 seconds to the engineering parameter level 1, tap on SET key, below parameter will display one by one



Notation	Name	Range	Factory default	Note
P1	P1	0.0~200.0	20.0	1
I1	I1	0~3600 S	210	2
D1	D1	0~3600 S	30	3
ATOL	AT off-set	0-199°C	0	4
CYCLE	Cycle time	0~999 S	20	5
HYS1	HYS1	0.0 to 100.0	1.0	6
AT	AT	Yes or No	-5.0	7
AL1	AL1	-1999 to 9999	0.0	8
rSt1	rSt1	-30 to 30	100.0	9
OPL	OPL	0.0 to 100.0%	0	10
OPH	OPH	0.0 to 100.0%	0.0	11
BUFF	BUFF	0.0 to 100%	100.0	12
LCK	LCK	0000-0255	0	13

Note 1: Proportional band in PID, When P1=0, the control mode switch to ON/OFF mode Set P1=2 for analog input

Note 2: Integral time for PID, When I1=0, the integral action off, the effective of integral action gets stronger when I1 value gets smaller, more fluctuation expected when I1 gets smaller

Note 3: Derivative time for PID, when D1=0, derivative action off, the effective of the derivative action gets stronger when D1 value gets bigger, more fluctuation expected when D1 gets bigger

Note 4: Auto-tuning offset value, the auto-tune offset will shift the SV value down by the ATuL, during the auto-tune process, that will prevent the system from damage due to over heating during the auto-tune

Note 5: Control cycle time, Set cycle time at 20 seconds for relay output, set cycle time at 2 seconds for SSR drive output.

Note 6: Hysteresis value for ON/OFF control mode, when P1=0, the control mode switch to ON/OFF control mode, PV>SV, OP1 output terminated, PV<SV-HYS1, OP1 active PV>SV+HYS1, OP1 active, PV<SV, OP1 terminated

Note 7: This parameter can initiate or terminate the auto-tuning process, choose YES to active the auto-tuning function, choose NO to turn off the process.

Note 8: Alarm 1 value configuration, this parameter used to configure the deviation alarm value for the temperature, if you put the value as 15 degree, then the alarm 1 will be triggered if the process value PV> TEMP(SV)+15.

Note 9: This parameter used to suppress the overshoot during the first round of heating up process, this parameter will be calculated automatically by auto-tuning, and the best way to come up with this value is via auto-tuning

Note 10: This parameter used to define the output lower limit

Note 11: This parameter used to define the output higher limit

Note 12: This parameter used to constrain the output variation rate, it only works for analog output, for example, if you put the value as 5%, means the output will not changes more than 5% per second, this will protect some of the system from being damaged.

Note 13: Access protection

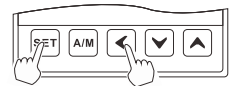
LCK=0000, all parameters can be configured

LCK=0001, all parameters are locked, can not be modified

LCK=0011, all parameters are locked, can not be modified

LCK=0101, all parameters can be configured, and you can access to engineering parameter level 3.

### 1.2 Engineering parameter level 2

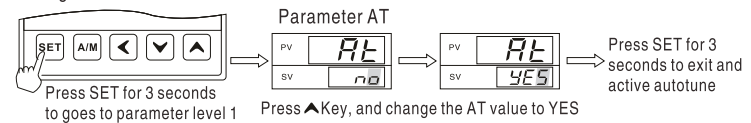


Goes to parameter level 1 and locate the parameter LCK, change LCK value from 0000 to 0101 and then press SET key to exit and save the configuration. press SET key and left arrow key ← at the same time, you will be directed to engineering parameter level 2, below are the parameters you will see if you tap on the SET key.

Notation	Name	Range	Factory default	Note							
INP1	Input range selection										
	Notation	E1	E2	E1	E2	J1	J2	N	J		
	Range	400.0 °C	1300 °C	300.0 °C	600 °C	400.0 °C	800 °C	1300 °C	2000 °C		
	Notation	S	T	R	B	F4	F3	F2	F1	PL1	PL2
Range	1600 °C	400.0 °C	1700 °C	1800 °C	reserved	reserved	reserved	reserved	Pt100	Pt100	Pt100
User can select the input sensor from the parameter menu											
LSPL	SV setting lower limit	-1999 to 9999	0	Minimum setting value							
USPL	SV setting higher limit	-1999 to 9999	400	Maximum setting value							
UNIT	Display units	0, 1	0	0: celcius 1: fahrenheit							
PIOS	Input offset	-199 to 199	0.0	To compensate the PV error Process value=PV x PL +PVOS							
PFLT	Input filter strength	0 to 60	25	1-30 standard filter strength 31-60 enhanced filter strength							
PL	PV offset	0.500~1.500	1.000	To compensate the PV error Process value=PV x PL +PVOS							
ESP	Temperature deviation value for timer triggering	0 to 2000	1	Normally the timer will be triggered when PV=SV, but you can also set the timer to be triggered at other points when PV is still less than SV							
EOd	program end alarm mode	0 or 1	0	=0, AL2 triggered and the relay pull-in doesn't release =1, AL2 triggered and the relay pull-in for 5 seconds and then release							
BEr	soft-start function	0, 1, 2	0	0: Soft-start function off 1: Soft-start on all the time 2: Soft-start on when output increase soft-start off when output decrease							
ADR	Device address	0-127	1	Device address							
BAUD	Baud rate	0, 1, 2, 3	2	bAud = 0 means 2.4K, =1 means 4.8K, =2 means 9.6K, =3 means 19.2K							

### 1.3 How do you active the auto-tuning process

Please active auto-tuning right after power on when Process value still far away from Setting value



Goes to parameter AT and change the AT value to NO if you want to turn off the auto-tuning. AT indicator flashing after auto-tuning initiated. Auto-tuning is an ON/OFF control mode, significant temperature oscillation is expected and the time duration for the auto-tuning could be extra long than expected depends on different system, AT indicator stop flashing after auto-tune finished, P, I, D, rSt value was calculated automatically during the auto-tune Process. Controller goes back to PV/SV mode and with all the mentioned parameter saved with a new value. Controller starts to control the system with new parameter