

# Temperature Controller Setup Form

The controller has three screens for the user.

- **Field level.** On startup, the first screen is its temperature display. From here you can change the temperature setpoint for immediate change as well as other basic settings. You also can enter the next two levels via the following passcodes.
- **Function level.** This level allows you to set the type of input device (TC, RTD), the display resolution, displayed units (C or F) as well as Upper and Lower setting limits for the operator to not to be able to set outside of.
- **Control Level.** This menu should not be changed unless the purpose of the controller has been changed and installed in a different set up. Reference here is only for our settings, and changes should be referenced to the original manual.

## Field level:

Pressing the left button for 2 seconds enters this menu.

## Easy change mode:

The user has the ability to have any of up to 8 items set at this level to make it easier for the operator in the field to make basic changes without needing the password to get into more complex menus and possibly royally throw a wrench at it.

These can be set from either the Function or Control level menus and are set with the up/down keys once, using Enter to confirm selection.

If the customer wants a particular setting available for field operators to adjust, please indicate here:

Code	Name	Default	Setting requested
FP1			
FP2			
FP3			
FP4			
FP5			
FP6			
FP7			
FP8			

In Ref: To access the next two levels, the customer will need the following passcodes:

LOC	Password Lock	800 – Function level
		801 – Control level

## Function level (800):

### Basic settings (required for all setups)

Code	Name	Default	Setting requested
Int	The type of sensor used for Input – most common listed		
	0 Type K (-50.0-+1300C Range)		
	17 Type K (0-300.00C Range)		
	5 Type J		
	18 Type J (0-300.00C Range)		
	12 IR Pyrometer (F2 style)		
	21 Pt100 (-200.00-+600.0C Range)		
	22 Pt100 (-100-+300.00C Range)		
	Other inputs possible – see manual		
dp	Display resolution - TC and RTD only 0 or 0.0 are selectable - Others are available based on other inputs	0	
du	Temperature unit displayed (C or F)	C	

### Minimally Advanced settings (normally not required)

Code	Name	Default	Setting requested
SPL	Minimum lower limit of Set Value (if you want to restrict the user entry)		
SPH	Maximum upper limit of Set Value (if wanting to be restricted from exceeding)		
HiAL	High Alarm limit	Max (disabled)	
LoAL	Low Alarm Limit	Min (disabled)	
ALtd	Alarm output setup		
	- empty	0	
	- Aux	0	
	- AL2	0	
	- AL1	0	
	To set one of the alarm features the value must be assigned in the table for the alarm to behave as such: 0 – no Alarm function 1 – High limit alarm only 2 – Low limit alarm only		

Code	Name	Default	Setting requested			
	5 – Outside High and low limits 7 – Inside High and low limits					
Adon	Alarm on delay in seconds. If set to 0 no delay. Use to delay setting alarm if process tends to overshoot/undershoot and you want to delay setting a false alarm.	0				
AdoF	Alarm off delay	0				
Adt	Alarm delay definition – defines what alarms have delay 0 – no alarm delay function 1 – AL1 output has delay 2 – AL2 output has delay 3 – AUX output has delay 5 – Both AL1 and AL2 has delay 7 – AL1, AL2 and AUX has delay	0				
ALL	Alarm self-lock – shuts off output to the heater if the alarm is in effect. 0 – no alarm lock function 1 – AL1 output has lock 2 – AL2 output has lock 3 – AUX output has lock 5 – Both AL1 and AL2 has lock 7 – AL1, AL2 and AUX has lock	0				
ALE	Sets which alarm is allowed a first exemption i.e. on power start up this alarm would be the first to be set and should be ignored first in that case. 0 – No exemption 1 – High Alarm 2 – Low Alarm 3 – High Deviation Alarm 4 – Low Deviation Alarm 5 – Both High and Low Alarm 6 – Both High and Low Deviation alarm 7 – All Four have exemption	0				
InF	Present Value (PV) input filter. Set to reject noise in the input signal, larger value will slow the output response rate.					
LoC2	Locking the two menus as well as the setpoint from operator changing	0				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center;"><b>LOC</b></td> <td style="width: 33%; text-align: center;"><b>Field</b></td> <td style="width: 33%; text-align: center;"><b>Set point</b></td> </tr> </table>	<b>LOC</b>	<b>Field</b>	<b>Set point</b>		
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Code	Name	Default	Setting requested
	0	No restrictions	
	1	No restrictions	
	2	Allowed	X
	3	Allowed	X
	4	X	Allowed
	5	X	Allowed
	6	X	X
X = Locked			

### Control Level (801):

All settings on this level have to pertain to the basic operation of the controller, and should only be set by a trained controls engineer, and should only be needed to be changed if the purpose of the controller has been changed from its original configuration, like from heating to cooling action.

The following is the basic settings for operation as a PID controller.

#### Advanced settings

Code	Name	Default
CntL	Control mode	FPId – Fuzzy logic PID
orEV	Acting Method	Onr – Reverse acting (higher value, lower output)
A-M	Auto/Manual control	Auto
At	Auto Tuning	On – Active auto tuning
P	Proportional Band	Normally set by Autotune
I	Integral time	
d	Derivative time	
CP	Control period	Typically for SSR set between 0.5 to 3 seconds. Smaller can increase accuracy of control.
oUt	Main output type	SSR

#### AutoTuning:

- From the main idle screen - press “<” for 2 seconds, the AT parameter will appear
- Change to “on” and press Enter
- Controller will ramp and cool 2-3 times to calculate the correct values
- The fuzzy logic on the controller will continue to learn over time and further improve