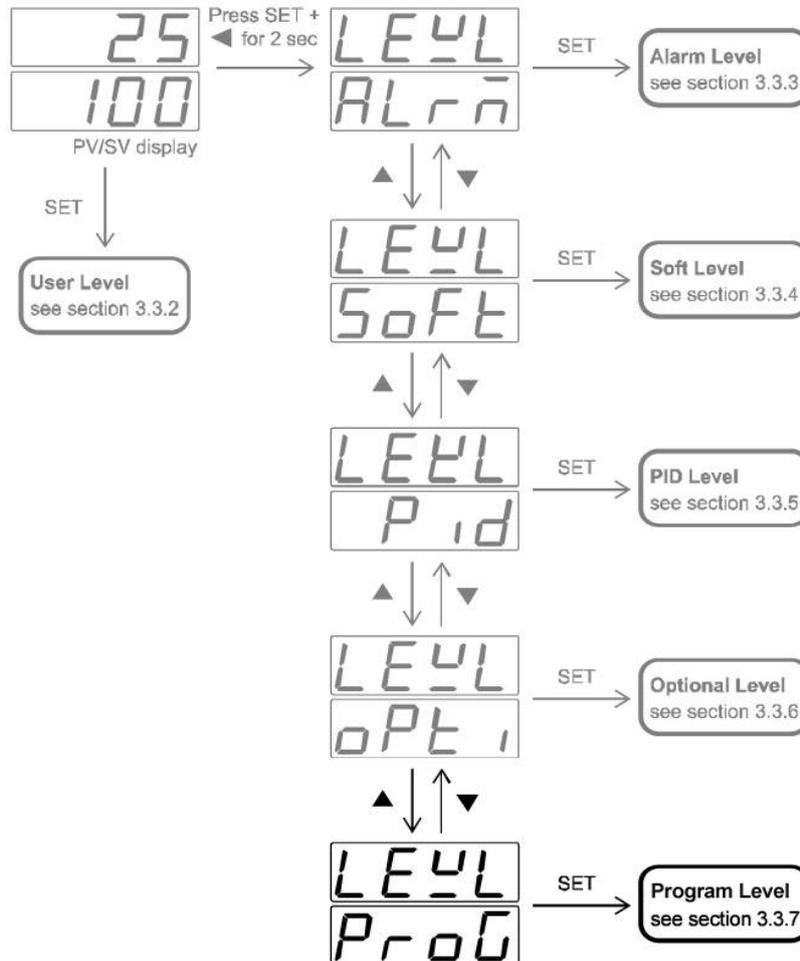


# F4P - PROGRAMMABLE PROFILE INSTRUCTION MANUAL

The profile function program level is only available when the F4P is ordered.



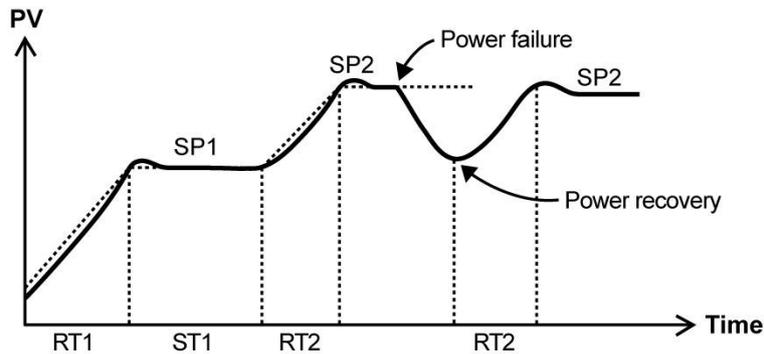
## 3.3.7 PROGRAM LEVEL

Display	Description	Range	Default	Unit
SEFF	Status After power failure, Yes start at last segment, No start at Seg 1	YES : yes no : No	No	N/A
SEPD	Start – Profile will start from current PV or "0"	PV : PV Zero : Zero	PV	N/A
bAnd	Band	0~2000 or 0~200.0	20	unit
rT 1	Ramp Time of segment 1	0~59:99	60	HH.MM or MM.SS
SP 1	Set-point of segment 1	Low limit ~ High Limit	20	unit
St 1	Soak Time of segment 1	0~59:99	60	HH.MM or

				MM.SS
<b>SF1</b>	Special Function of segment 1	<i>End</i> : End <i>HoLd</i> : Hold <i>nEllt</i> : Next <i>rt1</i> : RT1 <i>rt2</i> : RT2 <i>rt3</i> : RT3 <i>rt4</i> : RT4 <i>rt5</i> : RT5 <i>rt6</i> : RT6 <i>rt7</i> : RT7 <i>rt8</i> : RT8	End	N/A
<b>Ln1</b>	Loop Number of segment 1	1~9999	1	N/A
<i>rt2</i> <i>SP2</i> <i>St2</i> <i>SF2</i> <i>Ln2</i>	segment 2	Same as segment 1		
<i>rt3</i> <i>SP3</i> <i>St3</i> <i>SF3</i> <i>Ln3</i>	segment 3	Same as segment 1		
<i>rt4</i> <i>SP4</i> <i>St4</i> <i>SF4</i> <i>Ln4</i>	segment 4	Same as segment 1		
<i>rt5</i> <i>SP5</i> <i>St5</i> <i>SF5</i> <i>Ln5</i>	segment 5	Same as segment 1		
<i>rt6</i> <i>SP6</i> <i>St6</i> <i>SF6</i> <i>Ln6</i>	segment 6	Same as segment 1		
<i>rt7</i> <i>SP7</i> <i>St7</i> <i>SF7</i> <i>Ln7</i>	segment 7	Same as segment 1		
<i>rt8</i>	segment 8	Same as segment 1		

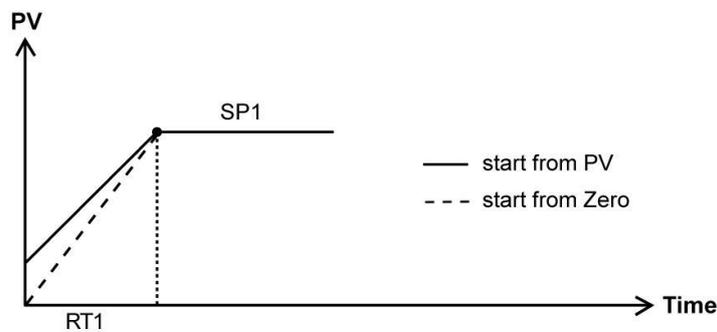
SPB				
StB				
SFB				
LnB				

**Status:** The status defines the behavior of the profile restart if power is lost and then restored. Set to “Yes”, the profile will start from the segment where it was interrupted by the power failure when power is recovered. Set to “No”, the profile will always start from segment 1 when power is restored. An example shown in figure 1, the status is set to “Yes”, a power failure happen during soak time ST2. On restoring the power the process will ramp up to SP2 with ramp time RT2 then proceed with soak.



**Figure 1. Power failure and recovery**

**Start:** Select the “start point” at which the profile must start from. Set to “Zero”, it will start from 0 or set to “PV”, it will start from current process value (PV)(Measured Temperature)



**Figure 2. Profile start from Zero or PV**

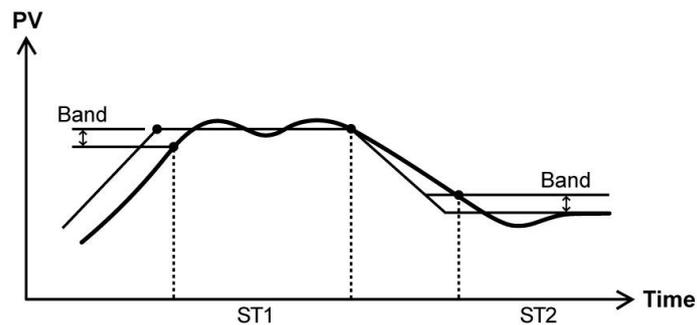
**Band:** This parameter sets the wait zone around the next soak set point within which the measured temperature must reach, before the next “soak” segment can start timing. As the set point ramps up or down, the process value (PV) may lag behind or deviate from the set point by an undesirable amount. The wait zone sets the tolerance before which the soak time will start counting. Setting range is from 0 to 2000 or 0.0 ~ 200.0.

You may however wish to set this “band” setting to “0” if you require that the profile reaches the exact set-point before the profile can continue. The temperature must reach the required set-point before the soak stage can

continue, but it may drop off after reaching it and the stage will continue on timing.

Note that if you choose to use a “band” the whole pattern will wait until the set point is within that band before it can continue. One area to watch is the end cycle. If you reduce the set point to ambient in a final ramp stage, the pattern cannot “END” until the actual temperature drops to the final target set point.

You can effectively disable the “band” parameter by making it as big as possible, at least 50 °C, so that most likely your measured temperature is always within that band.



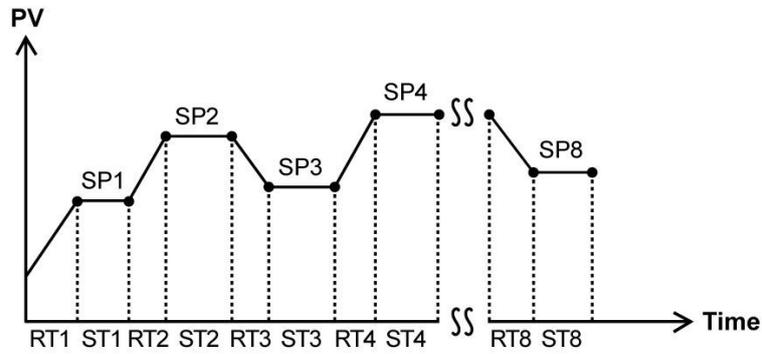
**Figure 3. Set the Band to start soak time**

**Ramp Time:** Sets the ramp time to reach the set point. The ramp time can be set from 00h00m to 99h59m or 00m00s to 99m59s depended on **PLnE** setting to be found in Option level. If you wish to jump as quickly as possible to the next setpoint, set Ramp = 1, do not make it 0.

**Set Point:** Sets the target set point of each segment.

**Soak Time:** NOTE: We are correcting a small problem with this function. Currently you can chose “seconds” or “Minutes” not Hours/Minutes or Minutes/Seconds (xxhxxm and or xxmxxs)

Sets the soak time for which the process value will remain at the set point. Setting range is from 00h00m to 99h59m 00m00s to 99m59s depended on **PLnE** setting.

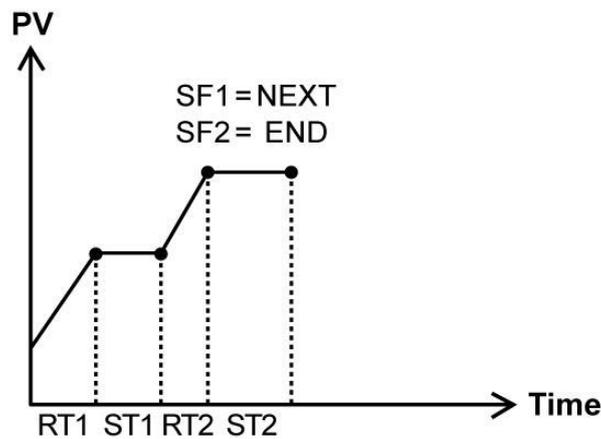


**Figure 4. Profile**

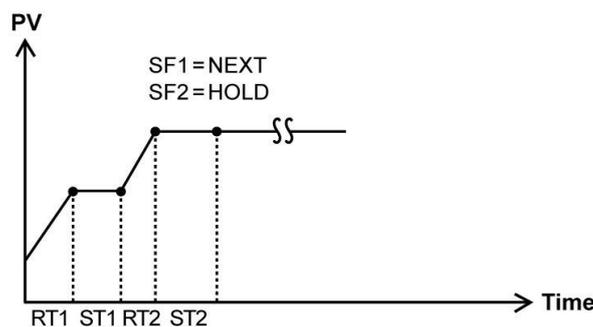
**Special Function:**

Sets the next action to follow once the current segment is completed.

- Next: Continue to next segment. Refer to figure 5.
- Hold: The profile will be held at current set point. Refer to figure 6.
- End: End of profile. Refer to figure 5.
  - Note: End will switch both Heating control output and Alarm output off once reached and return “run” parameter to “off”
- RT1 ~ RT8 This allows you to repeat previous steps by jumping back to that steps start of the “ramp” point and redoing it the number of times you set in the “loop” parameter.



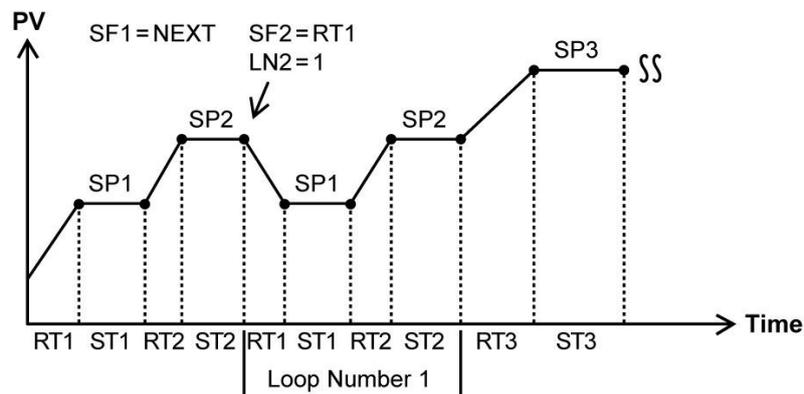
**Figure 5. SF1=NEXT and SF2=END**



**Figure 6. SF1=NEXT and SF2=HOLD**

- RT1: Jump to RT1
- RT2: Jump to RT2
- RT3: Jump to RT3
- RT4: Jump to RT4
- RT5: Jump to RT5
- RT6: Jump to RT6
- RT7: Jump to RT7
- RT8: Jump to RT8

- **Loop:** This allows you to repeat previous steps over and over again by jumping back to that steps start of the ramp” point and redoing it the number of times you set in the “loop” parameter. This works in conjunction with the “special function” parameter, that dictates which step to repeat.
- **LNx** Set the loop number when special function is set to RT1 ~ RT8. In the figure 6, the SF2 is set to jump to RT1 and LN2=1, so when the ST2 is done, the profile will ramp down to SP1 with RT1, because of the LN2=1, once step ST1 is repeated, the profile will go to next step by ramping up to SP3 with RT3.



**Figure 7. SF2 is set to jump to RT1 and LN2 = 1.**