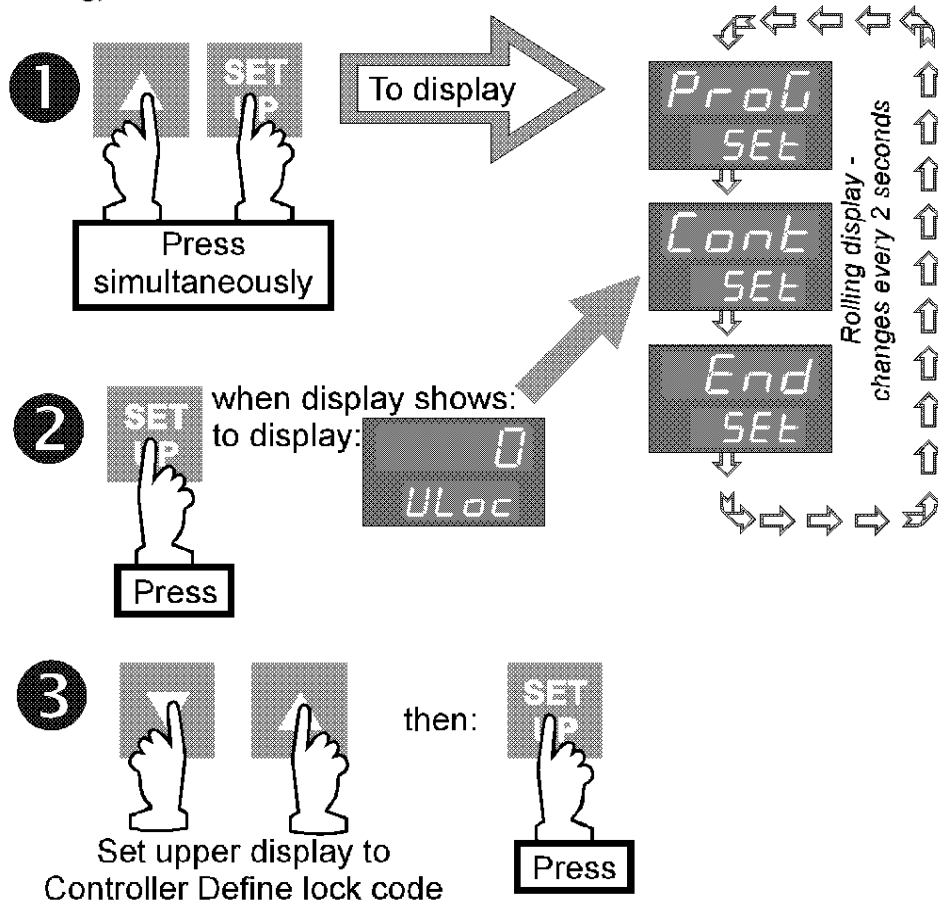


4 CONTROLLER SET-UP MODE

In this mode, the parameters which define the operation of the controller are defined. Controller Set-Up Mode can be entered (whether or not there is a program currently running) as follows:



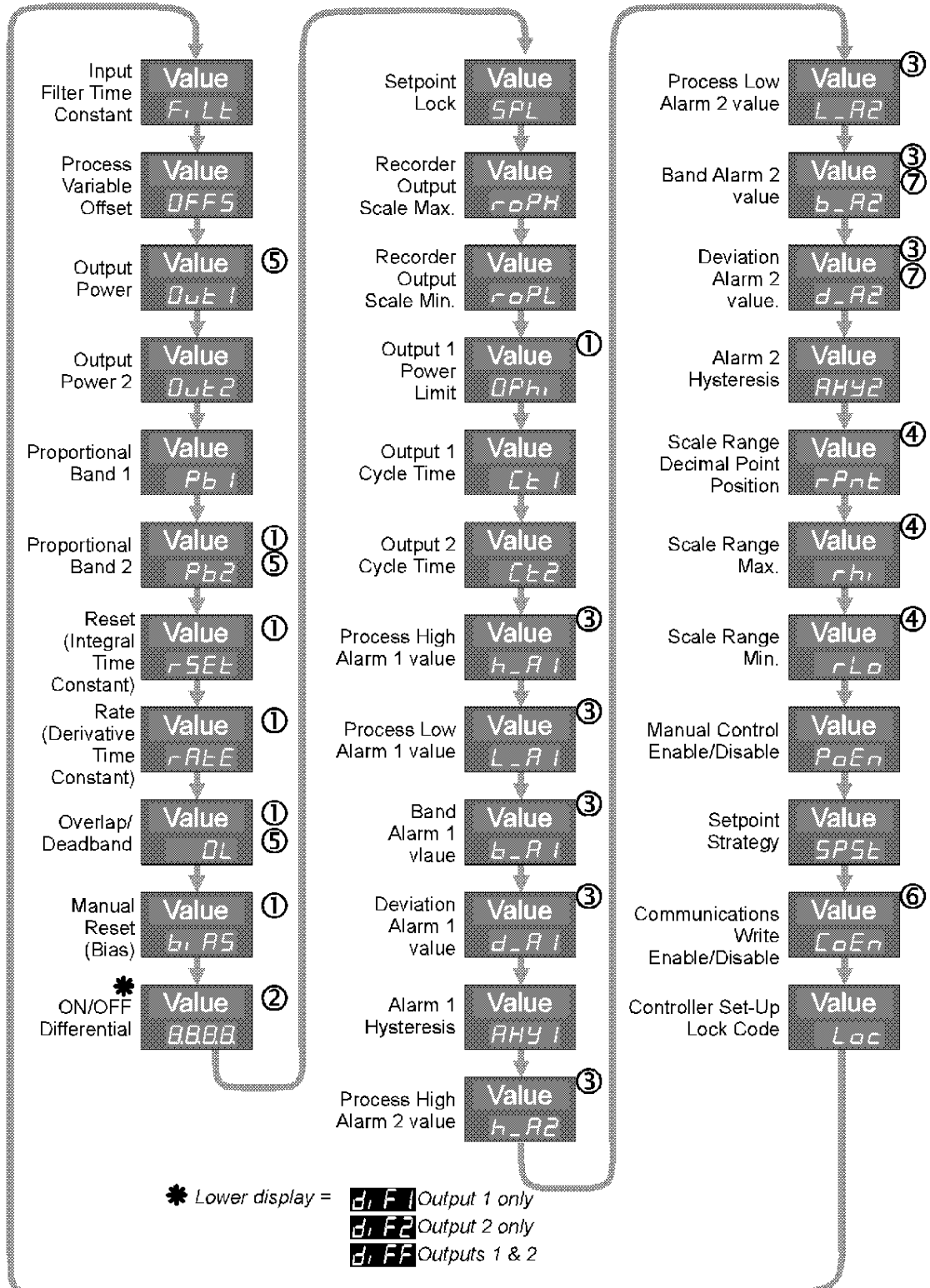
NOTES:

1. If the Controller Set-Up Mode lock code has been set to 0, pressing the **SET UP** key in Step 2 will give direct access to Controller Set-Up Mode; no entry of lock code is required.

2. If the upper display initially shows all decimal points illuminated (see right), one or more configuration parameters have been altered and, as a consequence, all Controller Set Up Mode parameters have been automatically set to their default values/settings. To clear this display, simply alter the value/setting of any Controller Set Up Mode parameter.



Upon entry into Controller Set-Up Mode, the first in a sequence of controller parameters will be displayed. The operator may then step through the parameter sequence using the **SET UP** key, adjusting the setting/value of each displayed parameter using the Up/Down keys. The parameter sequence is as follows:



NOTES

1. Not operative if Proportional Band = 0.
2. Switching differential for ON/OFF control output.
3. Optional; only one legend will appear for each alarm.
4. Only applicable if a DC linear input is fitted.
5. Only applicable if Output 2 is fitted as a secondary control (COOL) output.
6. Applicable only if the Communications Option is fitted.
7. When a program is running, respective to program setpoint.

4.1 PARAMETER DETAILS

| Parameter | Function | Adjustment Range | Default value |
|---------------------------------|---|---|------------------|
| Input Filter Time Constant | Filter removes extraneous impulses from the process variable input | OFF, 0.5 to 100.0 seconds in 0.5 second increments | 2.0 seconds |
| Process Variable Offset | Modifies actual process variable (PV) value: Offset PV + actual PV = PV value used | ±input span of Controller | 0 |
| Output Power 1 | Current Output 1 power level | 0 to 100% | Read only |
| Output Power 2 | Current Output 2 power level | 0 to 100% | Read only |
| Proportional Band 1 (PB1) | Portion of input span in which Output 1 power level is proportional to the (offset) process variable value (see Figure 4-1). | 0.0 to 999.9% of input span | 10.0% |
| Proportional Band 2 (PB2) | Portion of input span in which Output 2 power level is proportional to the (offset) process variable value (see Figure 4-1). | 0.0 to 999.9% of input span | 10.0% |
| Reset (Integral Time Constant) | Integral time constant | 1 sec. to 99min. 59 secs. and OFF | 5 mins. 00 secs. |
| Rate (Derivative Time Constant) | Derivative time constant | 00 secs. to 99 mins. 59 secs. | 1 min. 15 secs. |
| Overlap/ Deadband | Portion of proportional band (PB1 + PB2) in which both outputs are active (overlap) or neither output is active (deadband) - see Figure 4-1). | -20% to +20% of (Proportional Band 1 + Proportional Band 2) | 0% |
| Manual Reset (Bias) | Bias applied to output power, expressed as a percentage of output power. | 0% to 100% (Output 1 only); -100% to +100% (Output 1 & Output 2) | 25% |

| Parameter | Function | Adjustment Range | Default value |
|-------------------------------|---|---|---------------------|
| ON/OFF Differential | Switching differential for one output or both outputs set to ON/OFF control (PB1, PB2 or both = 0) - see Figure 4-1. | 0.1% to 10.0% of input span | 0.5% |
| Setpoint Lock | Enables/disables setpoint (SP) adjustment in Base Mode. | OFF - SP adjustable ON - SP not adjustable | OFF |
| Recorder Output Scale Maximum | Process variable or setpoint value (as applicable) for which the recorder output is a maximum | -1999 to 9999 (decimal point position as for input range) | Input Range Maximum |
| Recorder Output Scale Minimum | Process variable or setpoint value (as applicable) for which the recorder output is a minimum | -1999 to 9999 (decimal point position as for input range) | Input Range Minimum |
| Output 1 Power Limit | Limits Output 1 power level (to protect the process) | 0% to 100% of full power | 100% |
| Output 1 Cycle Time | Limits the frequency of operation of output relay to maximise relay life | 0.5, 1, 2, 4, 8, 16, 32, 64, 128, 256 or 512 secs. | 32 secs. |
| Output 2 Cycle Time | Limits the frequency of operation of output relay to maximise relay life | 0.5, 1, 2, 4, 8, 16, 32, 64, 128, 256 or 512 secs. | 32 secs. |
| Process High Alarm 1 | If Alarm 1 is a Process High Alarm, the value of the process variable at or above which Alarm 1 will be active (see Figure 4-2) | Input Range Minimum to Input Range Maximum | Input Range Maximum |
| Process Low Alarm 1 | If Alarm 1 is a Process Low Alarm, the value of the process variable at or below which Alarm 1 will be active (see Figure 4-2) | Input Range Minimum to Input Range Maximum | Input Range Minimum |
| Band Alarm 1 | If Alarm 1 is a Band Alarm, the band of process variable values, centred on the (program) setpoint, outside which the process variable will cause this alarm to be active (see Figure 4-2) | 0 to input span from (program) setpoint | 5 units |
| Deviation Alarm 1 | If Alarm 1 is a Deviation Alarm, gives a value above (positive value) or below (negative value) the (program) setpoint. If the process variable deviates from the setpoint by a margin greater than this value, the alarm becomes active (see Figure 4-2) | \pm input span from (program) setpoint | 5 units |
| Alarm 1 Hysteresis | Defines a hysteresis band on the safe side of the Alarm 1 value | 1 to 250 units | 1 unit |

| Parameter | Function | Adjustment Range | Default value |
|------------------------------------|---|---|----------------------|
| Process High Alarm 2 | If Alarm 2 is a Process High Alarm, the value of the process variable at or above which Alarm 2 will be active (see Figure 4-2) | Input Range Minimum to Input Range Maximum | Input Range Maximum |
| Process Low Alarm 2 | If Alarm 2 is a Process Low Alarm, the value of the process variable at or below which Alarm 2 will be active (see Figure 4-2) | Input Range Minimum to Input Range Maximum | Input Range Minimum |
| Band Alarm 2 | If Alarm 2 is a Band Alarm, the band of process variable values, centred on the (program) setpoint, outside which the process variable will cause this alarm to be active (see Figure 4-2) | 0 to input span from (program) setpoint | 5 units |
| Deviation Alarm 2 | If Alarm 2 is a Deviation Alarm, gives a value above (positive value) or below (negative value) the (program) setpoint. If the process variable deviates from the setpoint by a margin greater than this value, the alarm becomes active (see Figure 4-2) | \pm input span from (program) setpoint | 5 units |
| Alarm 2 Hysteresis | Defines a hysteresis band on the safe side of the Alarm 2 value | 1 to 250 units | 1 unit |
| Scale Range Decimal Point Position | For linear inputs only, defines the decimal point position | 0 (xxxx), 1 (xxx.x), 2 (xx.xx) or 3 (x.xxx) | 1 (xxx.x) |
| Scale Range Maximum | For linear inputs only, defines the scaled input value when the process variable input is at its maximum value | -1999 to 9999 | 1000 |
| Scale Range Minimum | For linear inputs only, defines the scaled input value when the process variable input is at its minimum value | -1999 to 9999 | 0000 |
| Manual Control Enable/Disable | | 0 (Disabled) or 1 (Enabled) | 0 (Disabled) |
| Setpoint Strategy | Determines whether or not the setpoint is adjustable in the normal Base Mode display | 0 = not adjustable, 1 = adjustable | 1 |
| Communications Enable/Disable | Enables/disables changing of parameter values via the communications link | 0 (disabled) or 1 (Enabled) | 1 (Enabled) |
| Controller Set-Up Mode Lock Code | Defines the four-digit code required to enter the Controller Set-Up Mode | 0 to 9999 | 10 |

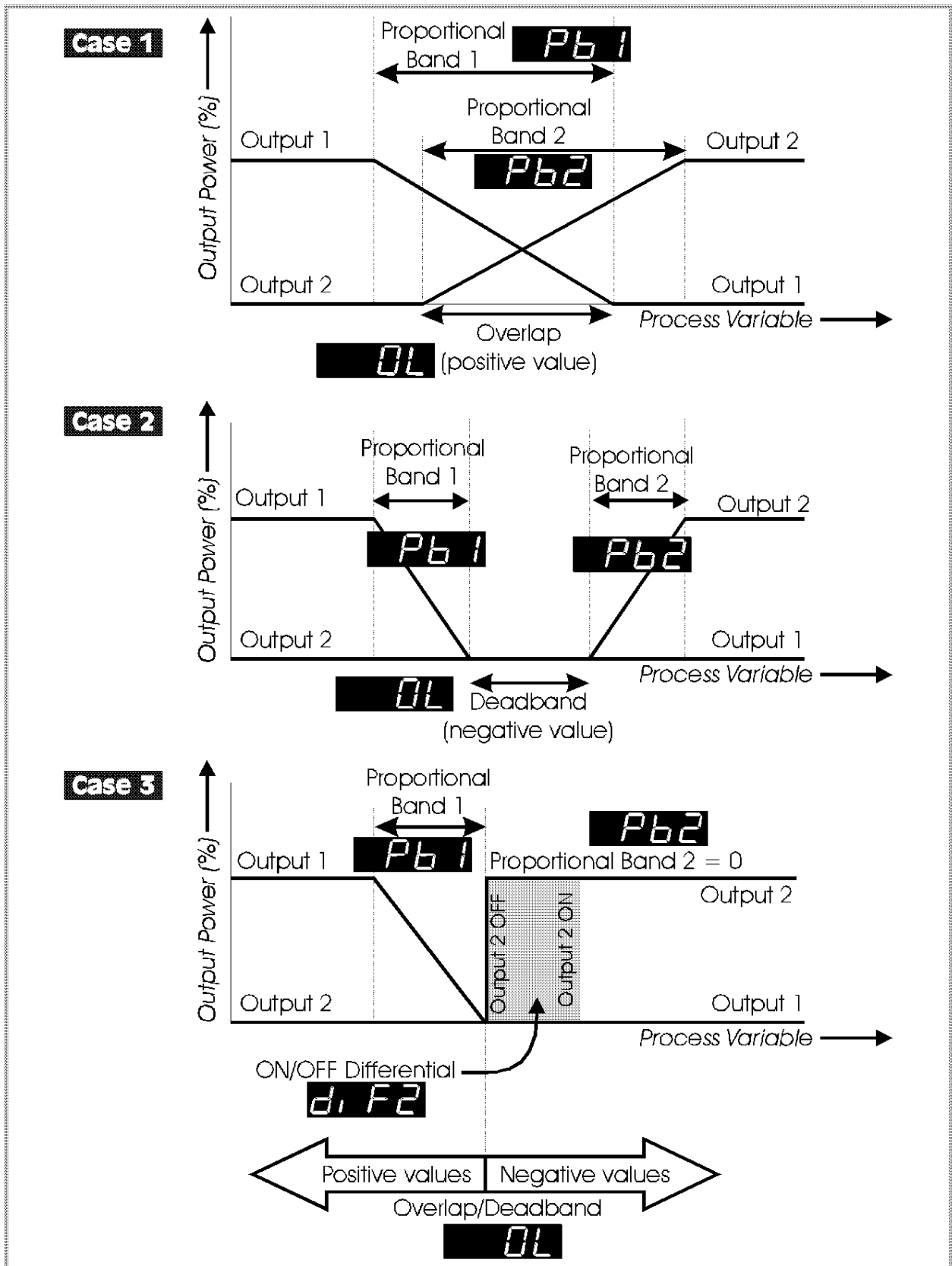


Figure 4-1 Proportional Band and Overlap/Deadband

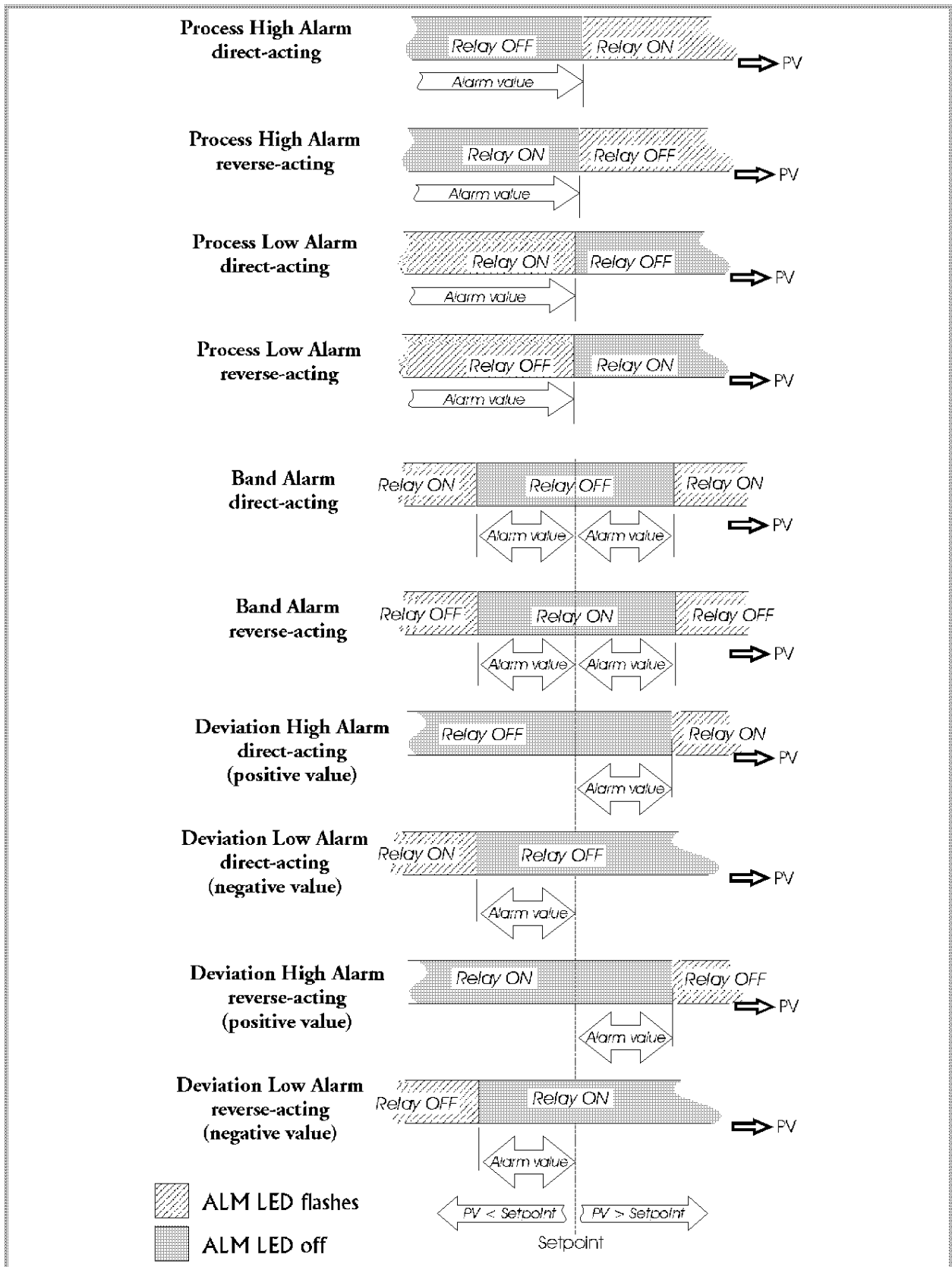


Figure 4-2 Alarm Operation

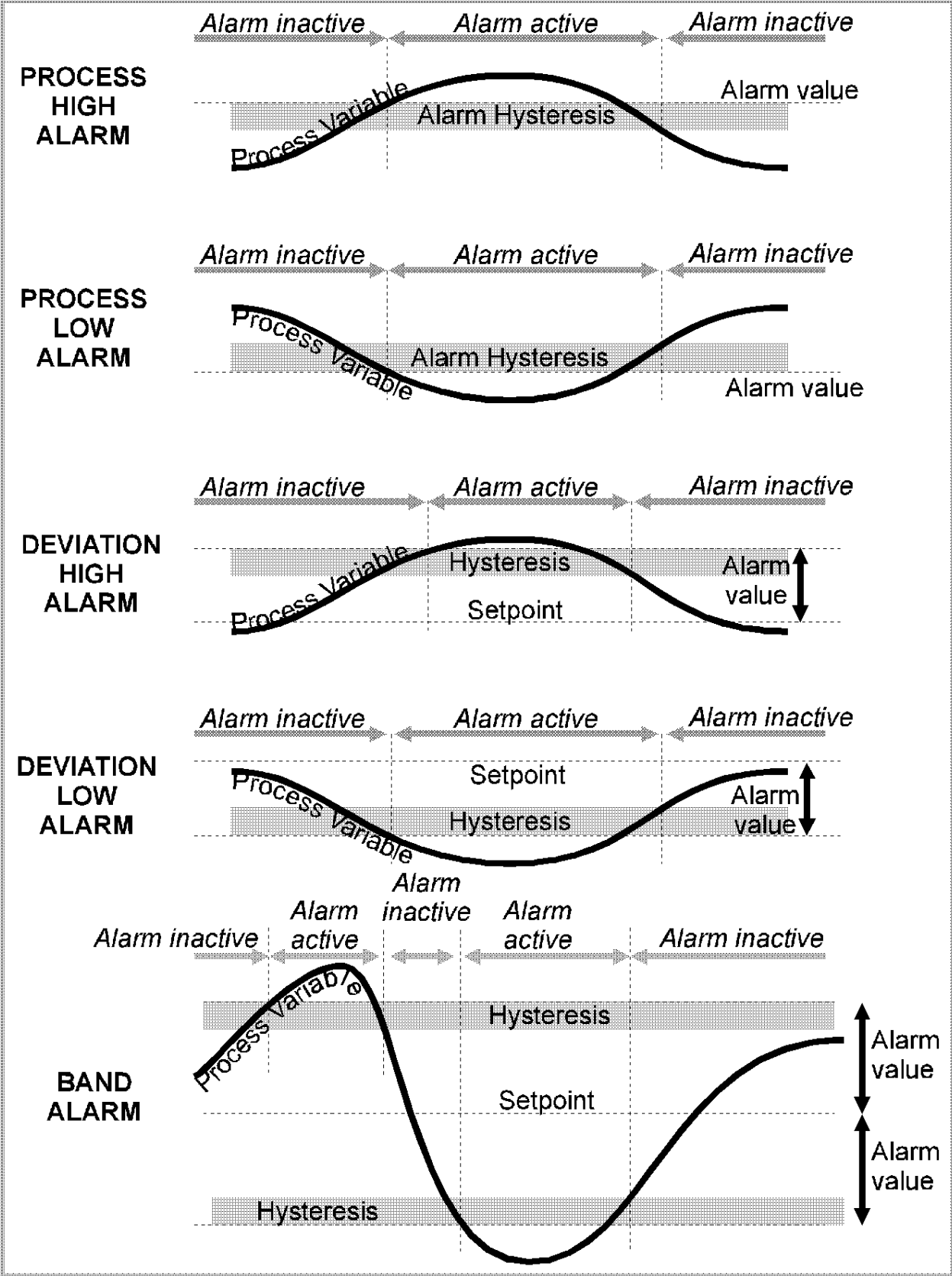
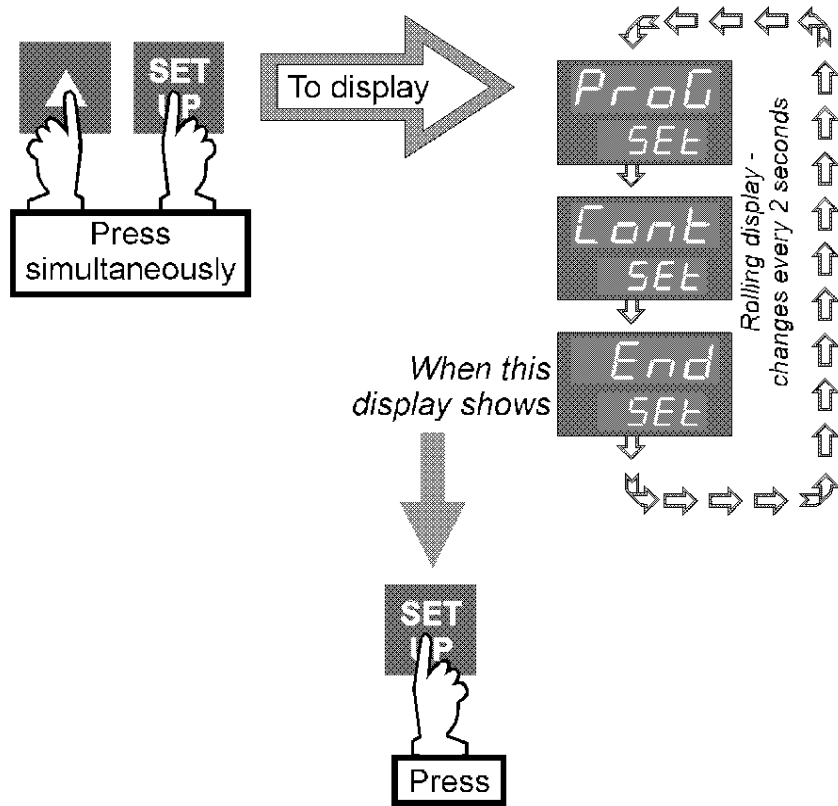


Figure 4-3 Alarm Hysteresis Operation

4.2 EXIT FROM CONTROLLER SET-UP MODE



A return will then be made to the normal Base Mode display.