

LBA

- The LBA function can be used only when it is assigned as an output. Also, the LBA function does not work when a memory error or A/D converter error results.
- LBA (Loop Break Alarm) is a function for judging that an error has occurred somewhere on the control loop and for outputting an alarm when the process value does not change with the manipulated variable at a maximum or minimum state. Accordingly, the LBA function can be used as a means for detecting a malfunctioning control loop.

LBA detection time

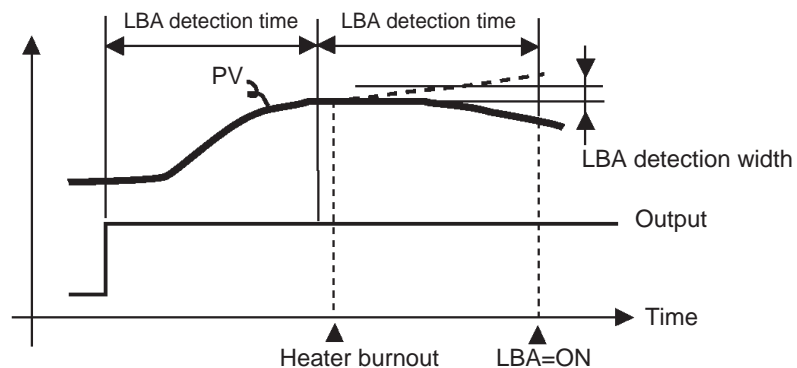
- Normally, when output is set to maximum or minimum, the process value rises or falls after the dead time has elapsed. LBA is output if the process value does not change in the predicted direction after a fixed amount of time has elapsed. This fixed amount of time is the “LBA detection time.”

LBA detection width

- LBA operation sometimes becomes unstable when the process value fluctuates considerably due to the control characteristics. The LBA detection width is provided so that changes with respect to output can be correctly detected. Changes smaller than the detection width due to LBA detection timing are not regarded as changes.

LBA detection example

- The following example describes what happens when a heater burn-out occurs at maximum output.



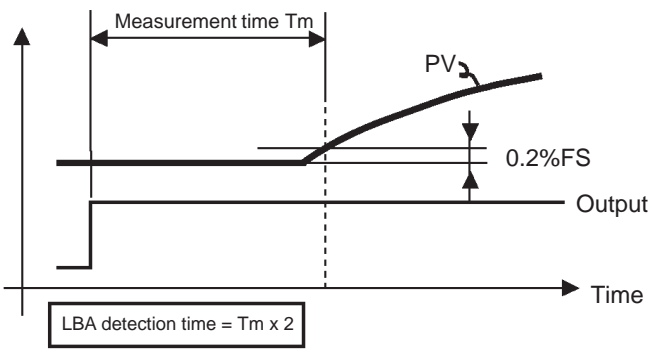
- LBA judgment is carried out at each LBA detection time from the point of maximum output. In the above figure, the process value (PV) is changing greatly at the 1st judgment time band, so LBA remains OFF.
- At the 2nd judgment time band, the process value increases as indicated by the broken line if the process value is normal. This means that the change width exceeds the LBA detection width, and LBA output remains OFF.
- If the heater burns out at the point shown in the above figure, the process value “decreases.” Accordingly, it is judged that “the process value is not changing in the increasing direction” at the 2nd judgment time band and the LBA output becomes ON.

Setting the LBA detection time

- The LBA detection time is automatically set by auto-tuning (except in heating and cooling control).
- If the optimum LBA detection time cannot be obtained by auto-tuning, set the time in the “LBA detection time” parameter (level 2 mode).

Determining the LBA detection time

- Calculate the LBA detection time as follows:
(1) Set output to maximum.
(2) Measure the time it takes for the input change width to reach the LBA detection width (factory setting: 0.2% FS).



- (3) Take a value twice that of the measurement time as the LBA detection time.

Parameters

Symbol	Parameter Name: Mode	Description
<i>At</i>	AT execute/Cancel : Level 1	For automatic setting of LBA detection time
<i>LbA</i>	LBA detection time : Level 2	For setting LBA detection time
<i>LbAb</i>	LBA detection width : Expansion	For changing LBA detection width