

### Safety Considerations

- **Operation chart for alarm output**
  - ON
  - Third setting group
  - OFF
  - 3.0
  - T
  - 0.0
  - Timers
  - 0
  - P
  - 0
  - C
  - OFF
  - PIDT

- **Functions**
  - EVENT function
    - Can use as main control output and sub function as well.
    - EVENT output is relay contact consisted of D120VAC and 1.5A.
    - There is no setting mode include deviation alarm and absolute alarm.
    - The operation of EVENT output is displayed on LEDS in front.
    - There is no terminator for EVENT output, it is operating as CV monitor operation at AL-3.
    - AL-4 displayed in LED 3 at front.
  - Autotuning function
    - PID Autotuning function is automatically to measure thermal characteristics and responses of the control section and then execute its value under high precision and stability after calculating. (Only TB42-14N model)
    - When AT function is started, LED3 will flicker and when LED is OFF, this operation will stop.
  - OSAL PID control function
    - Once the PV increased at 0.5V with fast response speed, but a little of overshoot is occurred.
    - With this mode, PIDON function is selected and a slow response speed is executed.
    - This mode is applied at the machines or systems which require slow response speed such as construction machines or road rollers.
    - When PV reacts to the temperature at 0.5V.
  - Retrival setting output(PPO)
    - The function is to output the current value of the external equipment such as PC or recorder etc. the output is 0-4/20mA and can be used with control output at the same time.
    - It will be output 4mA when PV reacts to the temperature in 0.1°C, and output 20mA, when PV reacts to the temperature in 0.1°C.
  - Error indication
    - If error is occurred while the controller is operating, it will be displayed as follow.
    - "EV-1" display when measured input temperature is lower than input range of the sensor.
    - "EVENT" display when measured output temperature is lower than input range of the sensor.
    - "PIDT" display when the input sensor is not connected or its cable is cut.
  - Manual reset(AL-4)
    - Proportional control has an offset because rising time is not the same as falling time, even if the PID parameter is normally. Thus, this function is provided.
  - Lock function
    - Setting value can be changed by unauthorized person. There are 4 kinds of lock mode in this unit.
    - EV-1: All modes can be changed.
    - AL-1: All modes except Second setting group.
    - AL-2: All modes except SV.
    - AL-4: All modes can be changed.
  - Time function(AL-5)
    - There is no output terminal in this function, it controls main output by setting of Timer function.
    - When set "0000" in StSP mode: When time is set in "t-SV", it starts to control temperature.
    - Ex) If set 5.0 to t-SV, it will start to control after 5 hours.
  - Dual PID control function
    - This function is used as principal control output and sub function as well.
    - For example, the temperature deviation is set in EV-1 for principal control and the temperature deviation is set in EV-2 for sub function.
    - When timer function is used, the time has been set in "t-SV" will be displayed in SV display of EV-1.

### Operation chart for alarm output

- LED 1 doesn’t operate. (LED indication is OFF)
- After setting alarm output in EVENT 2, execute manual operation if timer function is not used.
- This function is to control the main output by setting of Timer function.

### Manual reset(AL-4)

- PIDT: Only when AT function is started, this function will be OFF.
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- For example, the temperature deviation is set in EV-1 for principal control and the temperature deviation is set in EV-2 for sub function.
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