2. TRANSFER TO EACH MODE AND PARAMETER

For detailed handling procedures and various function settings, please refer to separate FB100 Instruction Manual (IMR01W16-ECD). The manual can be downloaded from the official RKC website: http://www.rkcinst.com/english/manual_load.htm.

This manual describes the basic key operation and mode selection of the FB100.

All Rights Reserved, Copyright © 2008, RKC INSTRUMENT INC.

Some parameters are not displayed depending on the model and the specifications.

Display measured value (PV) or various parameter symbols.

Displays memory area number (1 to 8).

Switching the Remote/Local control mode between Remote mode and Local mode.

Displays memory area transfer (OUT1 and OUT2).

Displays manipulated output value (MV) and monitor (cool-side) value.

Displays integral time [heat-side].

Displays proportional band [heat-side].

Displays the content relating to the specification of the product is set. Set this parameter only when the controller is in STOP mode. However, it is impossible to check only the data even in RUN mode.

Set value change and registration

Some parameters are not displayed depending on the model and the specifications.

Operates the display in 2 seconds.

Displays measured value (PV) or selected parameter symbol.

Displays manipulated output value (MV) or various parameter symbols.

Displays manipulated output value of MV1 and MV2 (cool-side).

Displays manipulated output value of MV1 and MV2 (heat-side).

Displays manipulated output value of MV1 and MV2 (cool-side). From Plant release to To PID/AT transfer,

Displays manipulated output value of MV1 and MV2 (heat-side).

Displays manipulated output value of MV1 and MV2 (cool-side)

Displays manipulated output value of MV1 and MV2 (heat-side)

Displays manipulated output value of MV1 and MV2 (cool-side)

Displays manipulated output value of MV1 and MV2 (heat-side)
3. OPERATION

3.1 Set the Event Set Value (Alarm Set Value)

Example: Change the event set value (SV) to 20°C.

- **PV/SV monitor**
  - Parameter setting mode: ALARM
  - PV high (MV1): 20°C
  - PV low (MV2): ~
  - PV high (MV1): ~
  - PV low (MV2): ~

- **Event value state**
  - Event set value (SV): 20°C
  - Event output state (EV): ~

- **Input value state**
  - Input value: 20°C

- **Display when input error occurs**
  - PV/SV monitor: Error display

- **Event type and action**
  - Event set value: 20°C
  - Event differential gap: 5°C

- **Requirements for autotuning (AT) start**
  - Start the AT when all following conditions are satisfied:
    - To start AT, go to PID/AT transfer in Operation mode.
    - The measured value (PV) is not underscale or over-scale.
    - The output limiter high limit is be 0.1 % or higher and the output limiter low limit is less than 0.1 %.
    - The cascade controller is activated, the PV cannot be turned on.
    - The temperature set value (SV) is changed.
    - The PV bias, the PV digital filter, or the PV ratio is changed.
    - The Remote/Local mode is changed to the Remote mode.

- **Requirements for autotuning (AT) cancellation**
  - When the AT is canceled according to any of the following conditions, the controller immediately changes to PID control. The PID value will be set as before AT was activated:
    - The AT is finished.
    - The set value (SV) is changed.
    - The mode is changed from PID to Local mode.

3.2 Autotuning (AT) Start/Stop

The AT function automatically measures, computes, and sets the optimum PID values.

**Caution when using the autotuning (AT)**

- When the temperature change (UP and/or Down) is 1°C or less per minute during AT, the AT may not function properly.
- In that case, adjust the PID values manually. Manual PID values might also be increased if the set value is around the ambient temperature or it is close to the maximum temperature achieved by the load.

- If the manipulated output may be limited by the output limiter setting, the optimum PID values might not be calculated by AT.

3.3 RUN/STOP Transfer

- When the digital input RUN/STOP transfer function is used, it is impossible to transfer RUN/STOP through key operation if the control is not closed.

**State of this instrument when set to STOP mode**

- The SV reaches the event set value, event ON occurs.

**Procedure of RUN/STOP transfer**

Changes RUN/STOP mode with the RUN/STOP transfer screen of the operation mode.

- Press the direct key when the RUN/STOP mode needs to be set.

**RUN/STOP transfer**

Press the direct key when the RUN/STOP mode needs to be set.

**State of this instrument when set to RUN mode**

- The PV/SV monitor screen will switch to the RUN mode.

**Display when input error occurs**

- Press the direct key when the RUN/STOP mode needs to be set.

**Event output state**

- The PV/SV monitor screen will switch to the RUN mode.

3.4 Setting Manipulated Output Value (MV) in Manual Mode

- When the digital input Auto/Manual Transfer function is used, it is impossible to transfer Auto/Manual Transfer through key operation if the control is not closed.

**Requirements for autotuning (AT) start**

- Start the AT when all following conditions are satisfied:
  - To start AT, go to PID/AT transfer in Operation mode.
  - The measured value (PV) is not underscale or over-scale.
  - When the AT is finished, the control will automatically returns to PID control. At this time, the AT lamp turns off.
  - When the AT is finished, press the DOWN key to set to "off." STOP.
  - When the AT is finished, the LBA time is automatically set twice as large as the integral time.

**Requirements for autotuning (AT) cancellation**

- When the AT is canceled according to any of the following conditions, the controller immediately changes to PID control. The PID value will be set as before AT was activated:
  - The AT lamp flashes.
  - The AT lamp is extinguished.
  - The AT lamp flashes.

**Error displays**

- In an error is detected by the self-diagnostic function, the PV display shows "Err" and the SV display shows the error code. If two or more errors occur simultaneously, the total summation of these error codes is displayed.

**Solution**

- Turn off the power of the unit. If an error occurs after the power is turned on again, please contact RKC sales office or the agent.