Operation for E5□N/E5□N-H/E5□N-HT

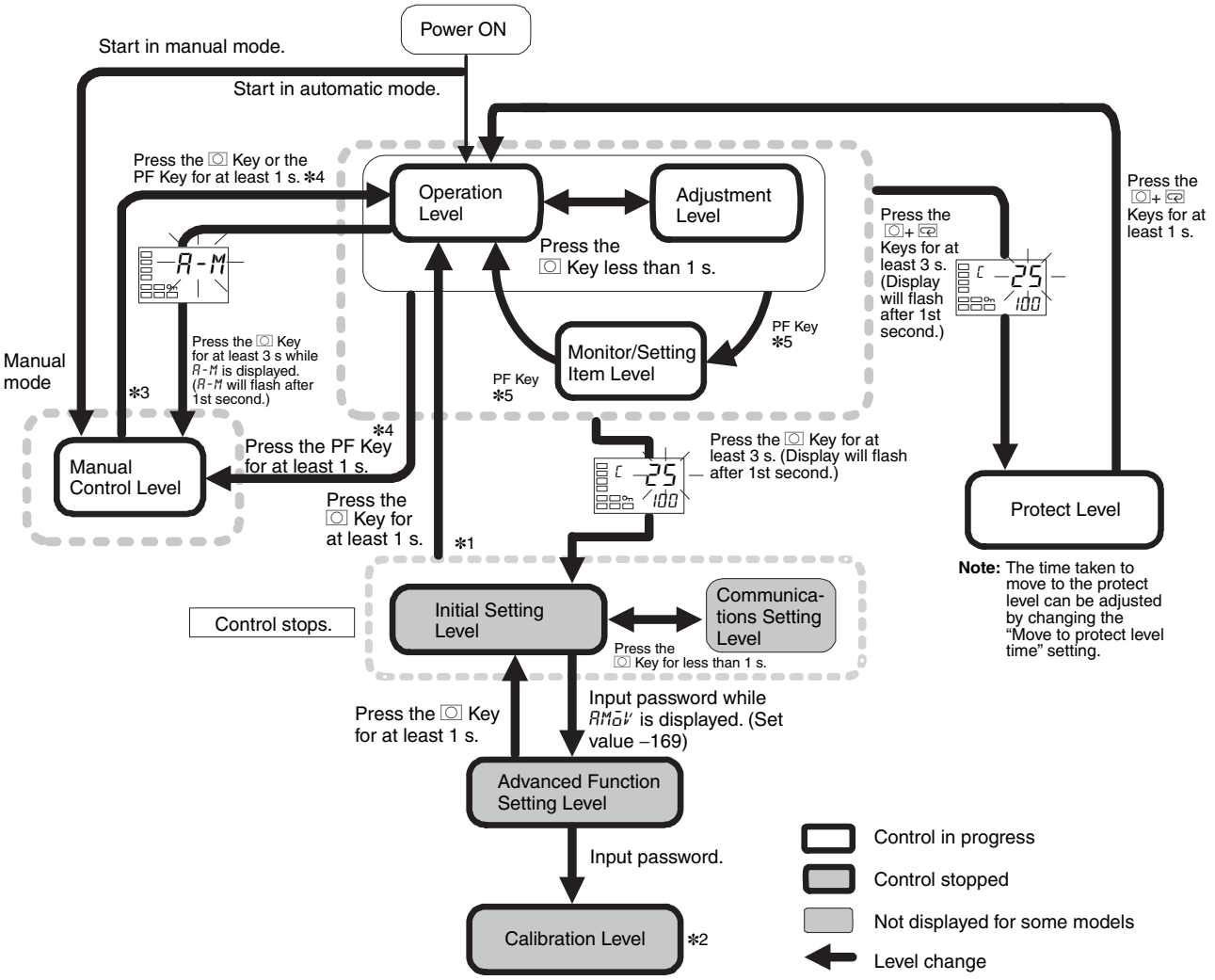
CSM_E5_N_E5_N-H_operation_TG_E_4_3

Operation

Setting Levels Diagram

This diagram shows all of the setting levels. To move to the advanced function setting level and calibration level, you must enter passwords. Some parameters are not displayed depending on the protect level setting and the conditions of use.
Control stops when you move from the operation level to the initial setting level.

Basic Type
E5CN/E5CN-U/E5AN/E5EN/E5GN



✻1. You can return to the operation level by executing a software reset.
✻2. It is not possible to move to other levels from the calibration level by operating the keys on the front panel. It can be done only by first turning OFF the power.
✻3. From the manual control level, key operations can be used to move to the operation level only.
✻4. When the PF Setting parameter is set to A-M for a Controller with a PF Key (E5AN/E5EN).
✻5. When the PF Setting parameter is set to PFDP for a Controller with a PF Key (E5AN/E5EN).

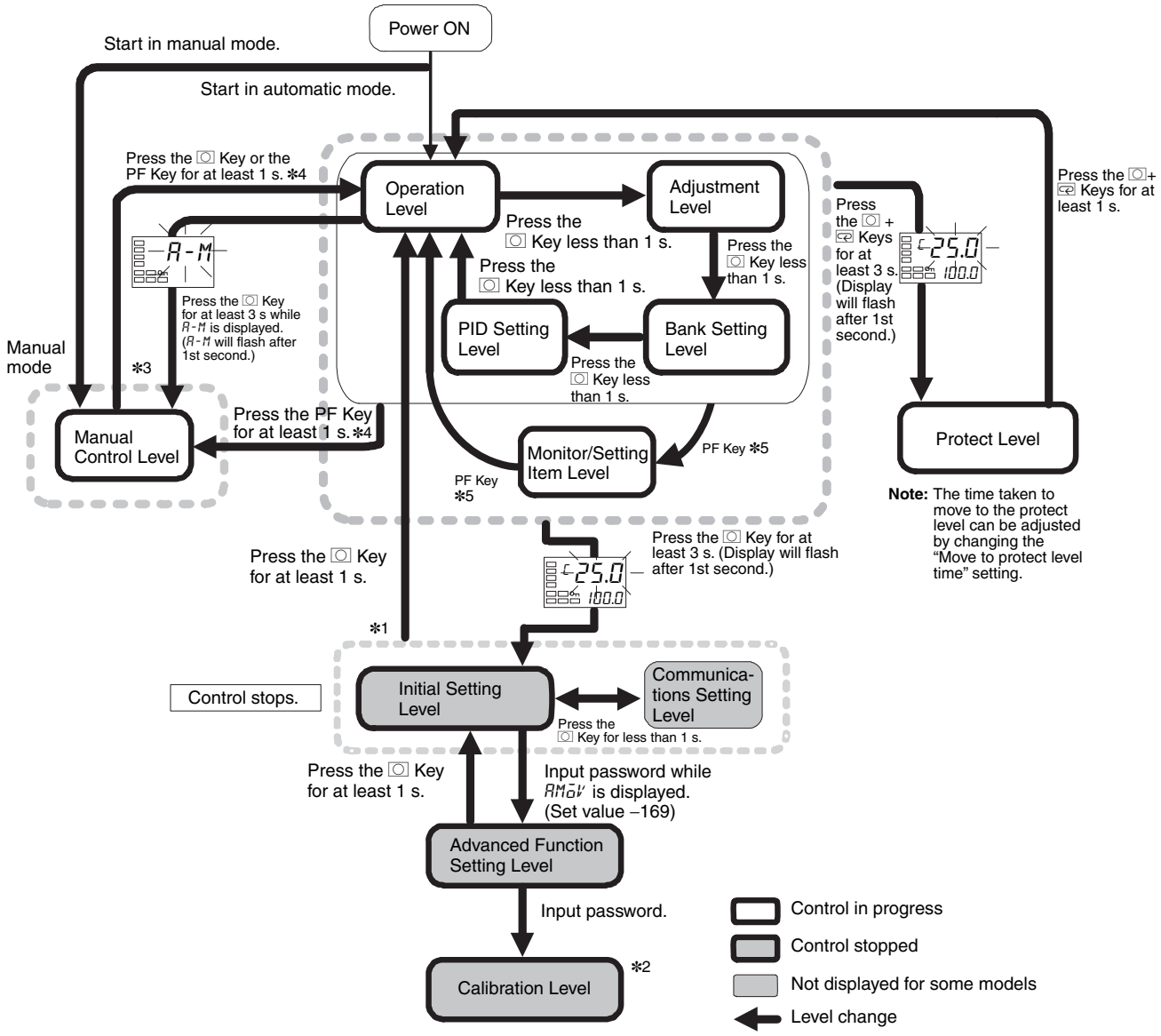
Error Displays (Troubleshooting)

When an error occurs, the No.1 display shows the error code. Take necessary measure according to the error code, referring the table below.

No.1 display	Meaning	Action	Status at error	
			Control output ✻1	Alarm output
S.ERR (S. Err)	Input error ✻2	Check the setting of the input type. Also check the input wiring and check for broken wires or short-circuits in the temperature sensor.	OFF	Operates as above the upper limit.
E333 (E333)	A/D converter error ✻2	Turn the power OFF then back ON again. If the display remains the same, the controller must be repaired. If the display is restored to normal, then a probable cause can be external noise affecting the control system. Check for external noise.	OFF	OFF
E111 (E111)	Memory error	Turn the power OFF then back ON again. If the display remains the same, the controller must be repaired. If the display is restored to normal, then a probable cause can be external noise affecting the control system. Check for external noise.	OFF	OFF

Note: If the input value exceeds the display limit (-1999 to 9999), though it is within the control range, ⊏⊏⊏⊏ will be displayed under -1999 and ⊐⊐⊐⊐ above 9999. Under these conditions, control output and alarm output will operate normally.
For details on the control range, refer to the *E5CN/E5AN/E5EN/E5GN Digital Temperature Controllers User's Manual Basic Type* (Cat. No. H156).
✻1. If the control output is assigned to the transfer output and the transfer output type is set to the present value, the upper limit value will be output for the present value when there is an input error.
✻2. Errors are shown only when the display is PV, PV/SV, or PV/MV. Errors are not shown for any other status.

Advanced Type
E5CN-H/E5AN-H/E5EN-H



✻**1.** You can return to the operation level by executing a software reset.
✻**2.** It is not possible to move to other levels from the calibration level by operating the keys on the front panel. It can be done only by first turning OFF the power.
✻**3.** From the manual control level, key operations can be used to move to the operation level only.
✻**4.** When the PF Setting parameter is set to A-M for a Controller with a PF Key (E5AN-H/E5EN-H).
✻**5.** When the PF Setting parameter is set to PFDP for a Controller with a PF Key (E5AN-H/E5EN-H).

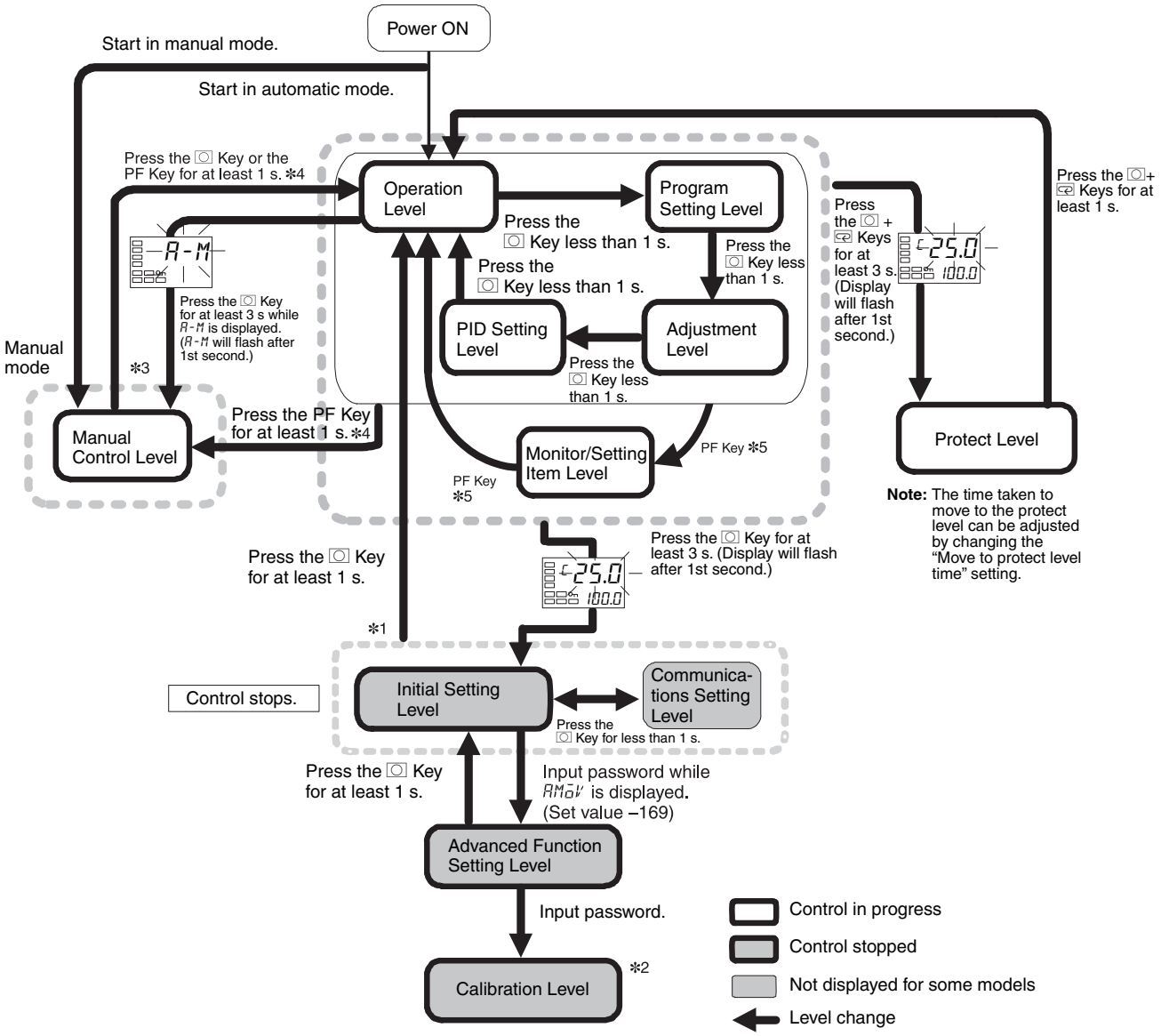
Error Displays (Troubleshooting)

When an error occurs, the No.1 display shows the error code. Take necessary measure according to the error code, referring the table below.

No.1 display	Meaning	Action	Status at error	
			Control output ✻1	Alarm output
S.ERR (S. Err)	Input error ✻2	Check the setting of the input type. Also check the input wiring and check for broken wires or short-circuits in the temperature sensor.	OFF	Operates as above the upper limit.
E333 (E333)	A/D converter error ✻2	Turn the power OFF then back ON again. If the display remains the same, the controller must be repaired. If the display is restored to normal, then a probable cause can be external noise affecting the control system. Check for external noise.	OFF	OFF
E111 (E111)	Memory error	Turn the power OFF then back ON again. If the display remains the same, the controller must be repaired. If the display is restored to normal, then a probable cause can be external noise affecting the control system. Check for external noise.	OFF	OFF

Note: If the input value exceeds the display limit (-19999 to 32400), though it is within the control range, ○○○○ will be displayed under -19999 and ○○○○ above 32400. Under these conditions, control output and alarm output will operate normally.
For details on the control range, refer to the *E5CN-H/E5AN-H/E5EN-H Digital Controllers User's Manual Advanced Type* (Cat. No. H157).
✻**1.** If the control output is assigned to the transfer output and the transfer output type is set to the present value, the upper limit value will be output for the present value when there is an input error.
✻**2.** Errors are shown only when the display is PV, PV/SV, or PV/MV. Errors are not shown for any other status.

Programmable Type
E5CN-HT/E5AN-HT/E5EN-HT



✻**1.** You can return to the operation level by executing a software reset.
✻**2.** It is not possible to move to other levels from the calibration level by operating the keys on the front panel. It can be done only by first turning OFF the power.
✻**3.** From the manual control level, key operations can be used to move to the operation level only.
✻**4.** When the PF Setting parameter is set to A-M. For the E5CN-HT, press the ↵+↑ Keys at the same time to implement the PF Key.
✻**5.** When the PF Setting parameter is set to PFDP. For the E5CN-HT, press the ↵+↑ Keys at the same time to implement the PF Key.

Error Displays (Troubleshooting)

When an error occurs, the No.1 display shows the error code. Take necessary measure according to the error code, referring the table below.

No.1 display	Meaning	Action	Status at error	
			Control output ✻1	Alarm output
S.ERR (S. Err)	Input error ✻2	Check the setting of the input type. Also check the input wiring and check for broken wires or short-circuits in the temperature sensor.	OFF	Operates as above the upper limit.
E333 (E333)	A/D converter error ✻2	Turn the power OFF then back ON again. If the display remains the same, the controller must be repaired. If the display is restored to normal, then a probable cause can be external noise affecting the control system. Check for external noise.	OFF	OFF
E111 (E111)	Memory error	Turn the power OFF then back ON again. If the display remains the same, the controller must be repaired. If the display is restored to normal, then a probable cause can be external noise affecting the control system. Check for external noise.	OFF	OFF

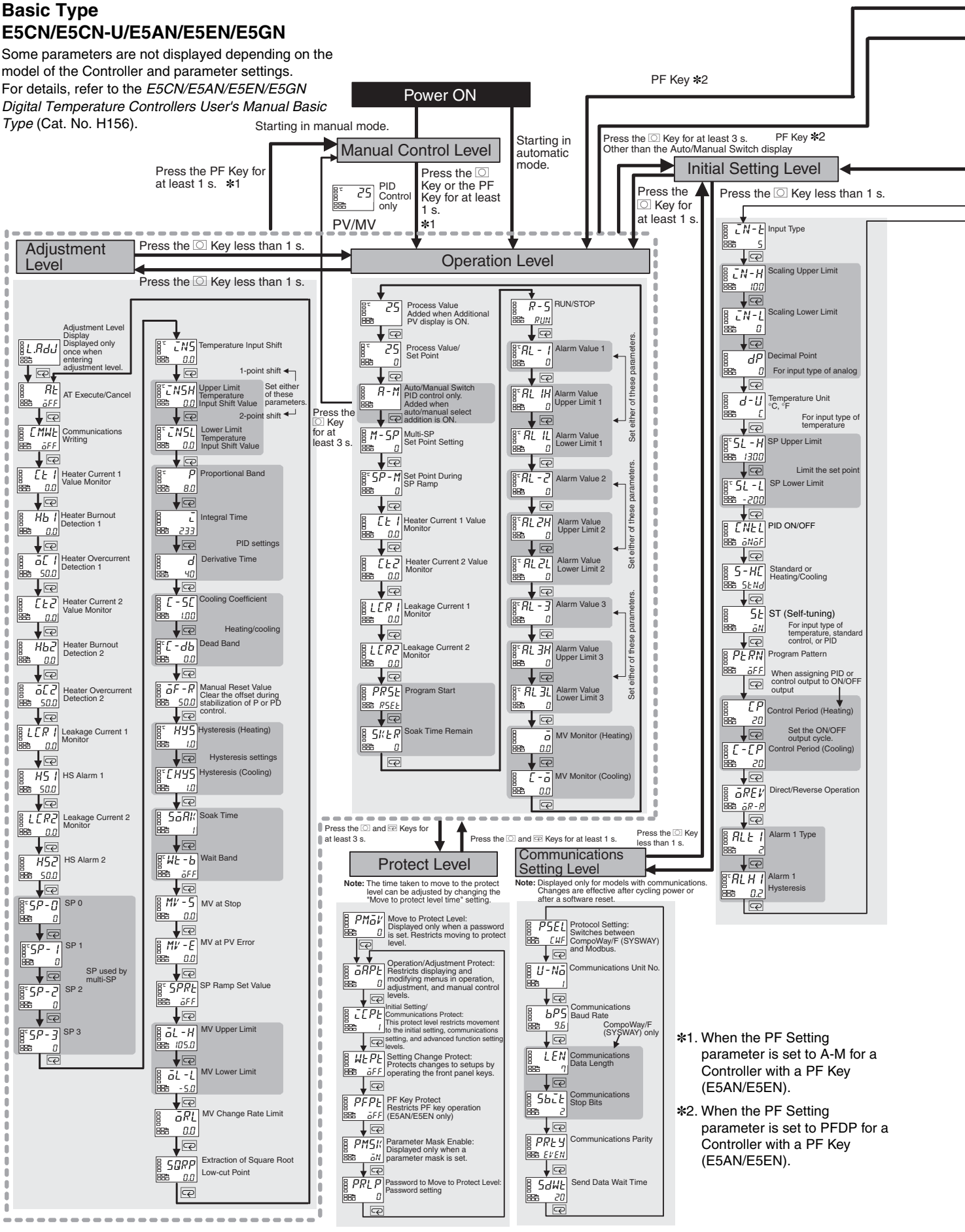
Note: If the input value exceeds the display limit (-19999 to 32400), though it is within the control range, CCCC will be displayed under -19999 and DDDD above 32400. Under these conditions, control output and alarm output will operate normally.
For details on the control range, refer to the *E5CN-HT/E5AN-HT/E5EN-HT Digital Controllers User's Manual Programmable Type* (Cat. No. H169).
✻**1.** If the control output is assigned to the transfer output and the transfer output type is set to the present value, the upper limit value will be output for the present value when there is an input error.
✻**2.** Errors are shown only when the display is PV, PV/SV, or PV/MV. Errors are not shown for any other status.

Parameters

Basic Type

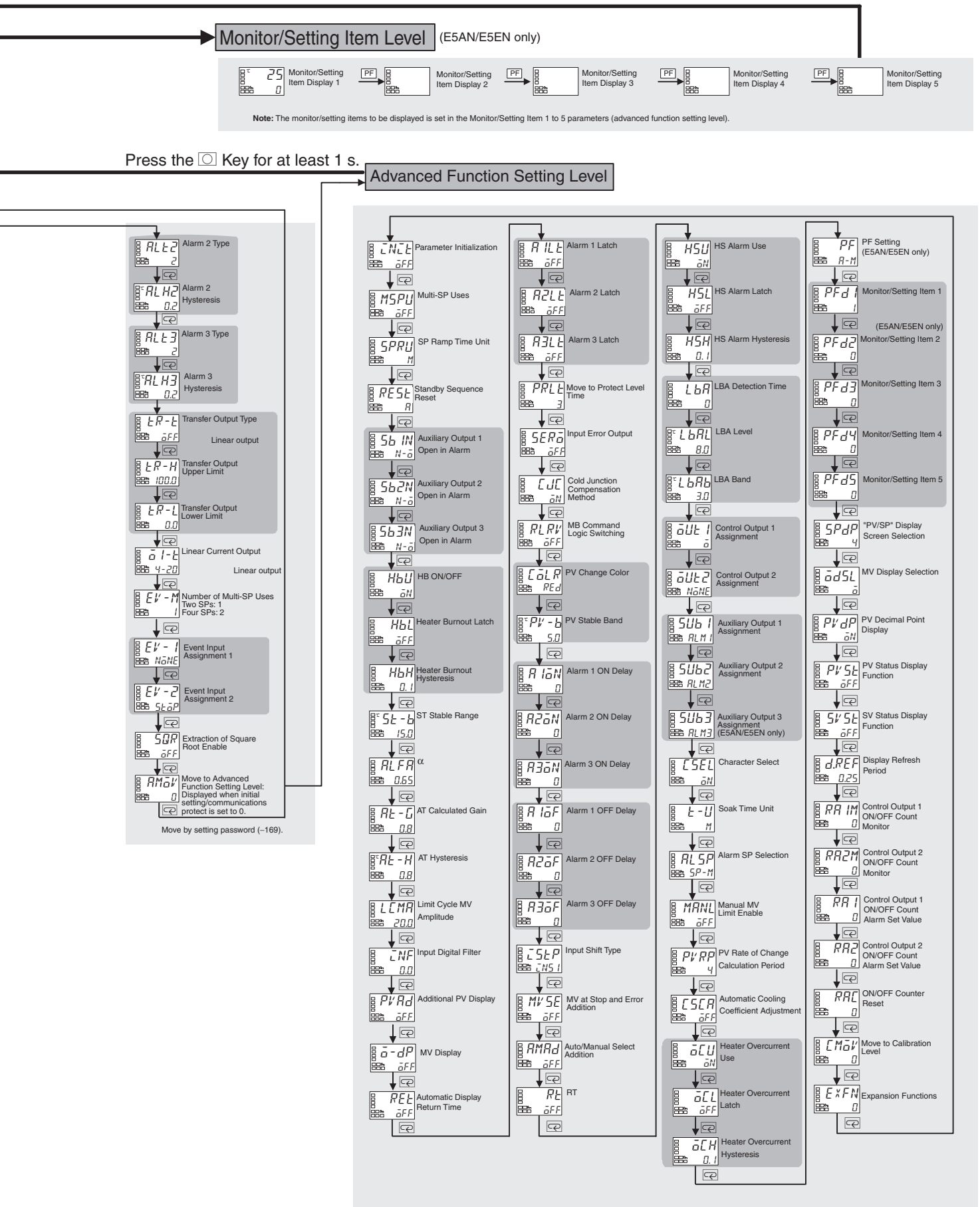
E5CN/E5CN-U/E5AN/E5EN/E5GN

Some parameters are not displayed depending on the model of the Controller and parameter settings.
For details, refer to the *E5CN/E5AN/E5EN/E5GN Digital Temperature Controllers User's Manual Basic Type* (Cat. No. H156).



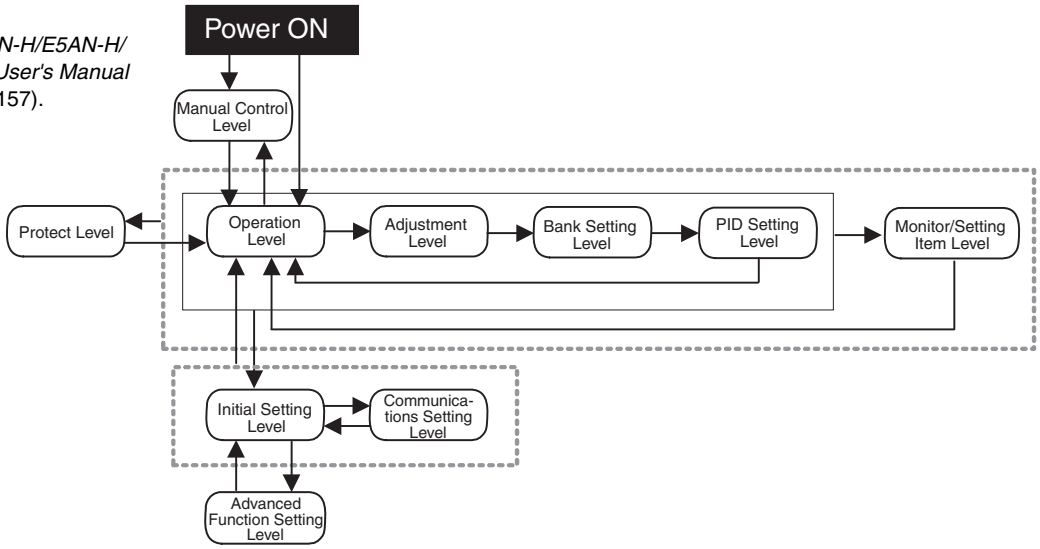
✻1. When the PF Setting parameter is set to A-M for a Controller with a PF Key (E5AN/E5EN).

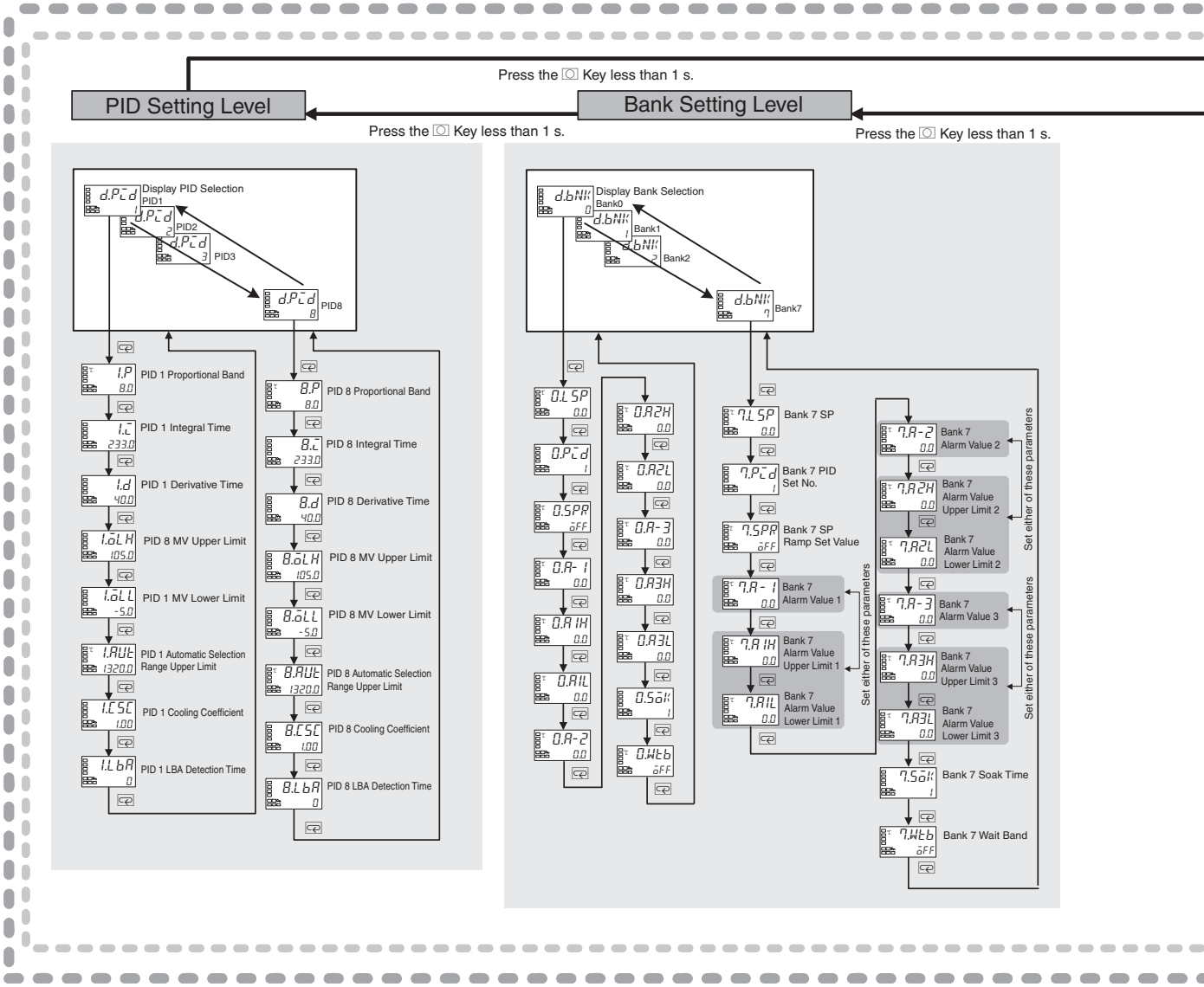
✻2. When the PF Setting parameter is set to PFDP for a Controller with a PF Key (E5AN/E5EN).

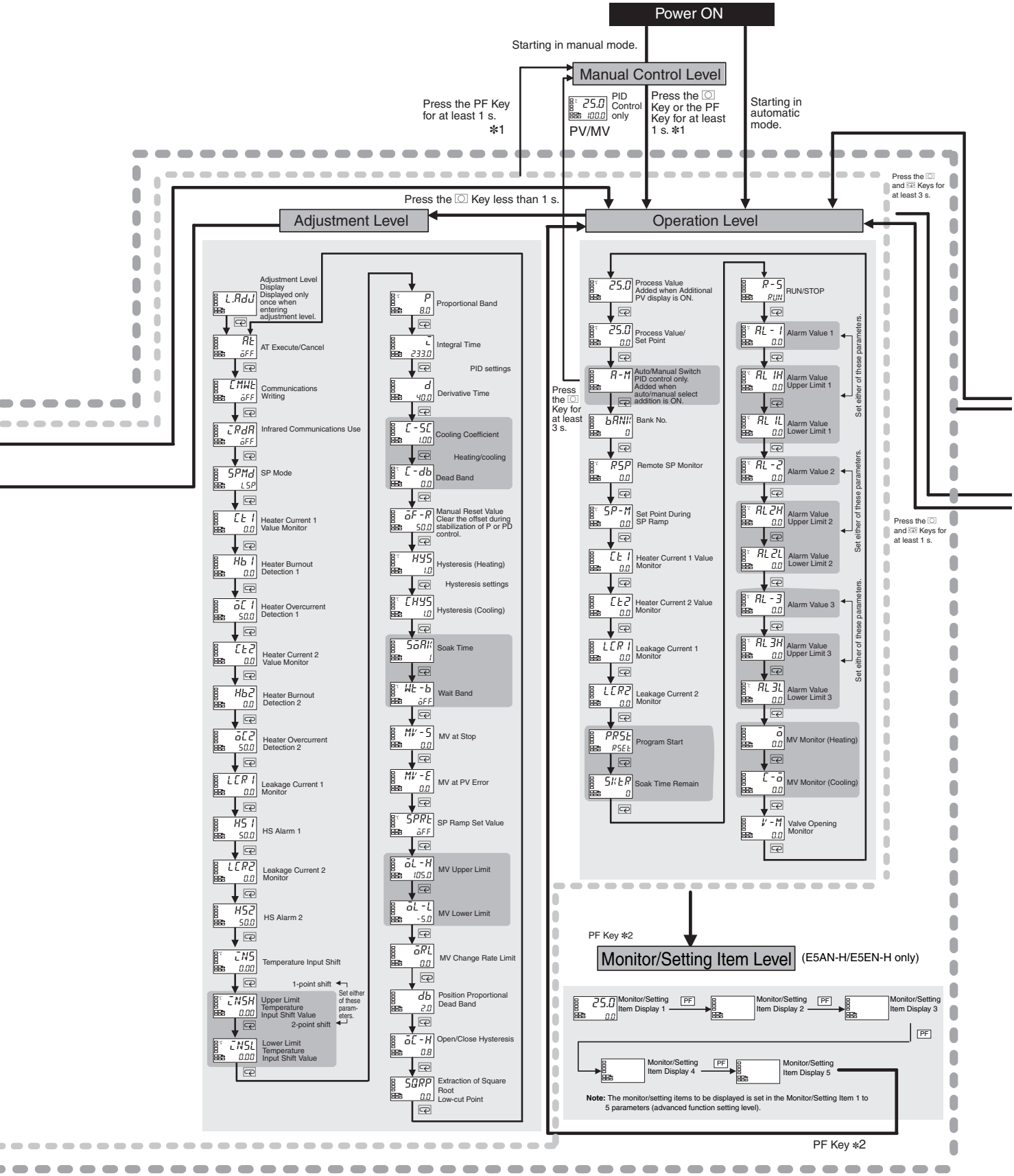

Monitor/Setting Item Level
(E5AN/E5EN only)
Monitor/Setting Item Display 1
Monitor/Setting Item Display 2
Monitor/Setting Item Display 3
Monitor/Setting Item Display 4
Monitor/Setting Item Display 5
Note: The monitor/setting items to be displayed is set in the Monitor/Setting Item 1 to 5 parameters (advanced function setting level).
Press the ○ Key for at least 1 s.
Advanced Function Setting Level
Alarm 2 Type
Alarm 2 Hysteresis
Alarm 3 Type
Alarm 3 Hysteresis
Transfer Output Type
Linear output
Transfer Output Upper Limit
Transfer Output Lower Limit
Linear Current Output
Linear output
Number of Multi-SP Uses
Two SPs: 1
Four SPs: 2
Event Input Assignment 1
Event Input Assignment 2
Extraction of Square Root Enable
Move to Advanced Function Setting Level: Displayed when initial setting/communications protect is set to 0.
Move by setting password (−169).
Parameter Initialization
Multi-SP Uses
SP Ramp Time Unit
Standby Sequence Reset
Auxiliary Output 1 Open in Alarm
Auxiliary Output 2 Open in Alarm
Auxiliary Output 3 Open in Alarm
HB ON/OFF
Heater Burnout Latch
Heater Burnout Hysteresis
ST Stable Range
α
AT Calculated Gain
AT Hysteresis
Limit Cycle MV Amplitude
Input Digital Filter
Additional PV Display
MV Display
Automatic Display Return Time
Alarm 1 Latch
Alarm 2 Latch
Alarm 3 Latch
Move to Protect Level Time
Input Error Output
Cold Junction Compensation Method
MB Command Logic Switching
PV Change Color
PV Stable Band
Alarm 1 ON Delay
Alarm 2 ON Delay
Alarm 3 ON Delay
Alarm 1 OFF Delay
Alarm 2 OFF Delay
Alarm 3 OFF Delay
Input Shift Type
MV at Stop and Error Addition
Auto/Manual Select Addition
RT
HS Alarm Use
HS Alarm Latch
HS Alarm Hysteresis
LBA Detection Time
LBA Level
LBA Band
Control Output 1 Assignment
Control Output 2 Assignment
Auxiliary Output 1 Assignment
Auxiliary Output 2 Assignment
Auxiliary Output 3 Assignment (E5AN/E5EN only)
Character Select
Soak Time Unit
Alarm SP Selection
Manual MV Limit Enable
PV Rate of Change Calculation Period
Automatic Cooling Coefficient Adjustment
Heater Overcurrent Use
Heater Overcurrent Latch
Heater Overcurrent Hysteresis
PF Setting (E5AN/E5EN only)
Monitor/Setting Item 1
(E5AN/E5EN only)
Monitor/Setting Item 2
Monitor/Setting Item 3
Monitor/Setting Item 4
Monitor/Setting Item 5
"PV/SP" Display Screen Selection
MV Display Selection
PV Decimal Point Display
PV Status Display Function
SV Status Display Function
Display Refresh Period
Control Output 1 ON/OFF Count Monitor
Control Output 2 ON/OFF Count Monitor
Control Output 1 ON/OFF Count Alarm Set Value
Control Output 2 ON/OFF Count Alarm Set Value
ON/OFF Counter Reset
Move to Calibration Level
Expansion Functions

Advanced Type
E5CN-H/E5AN-H/E5EN-H

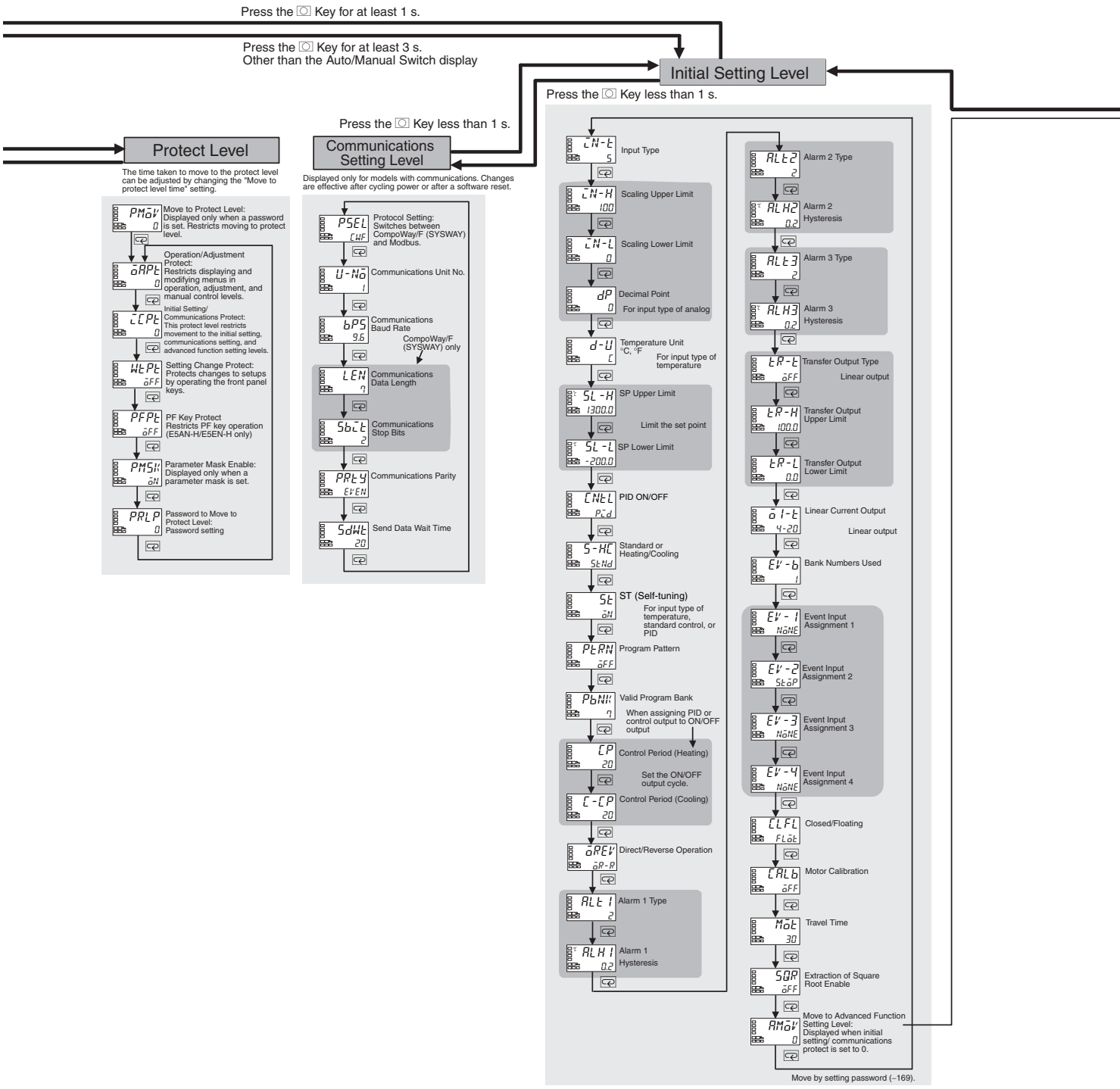
Some parameters are not displayed depending on the model of the Controller and parameter settings.
For details, refer to the *E5CN-H/E5AN-H/E5EN-H Digital Controllers User's Manual Advanced Type* (Cat. No. H157).

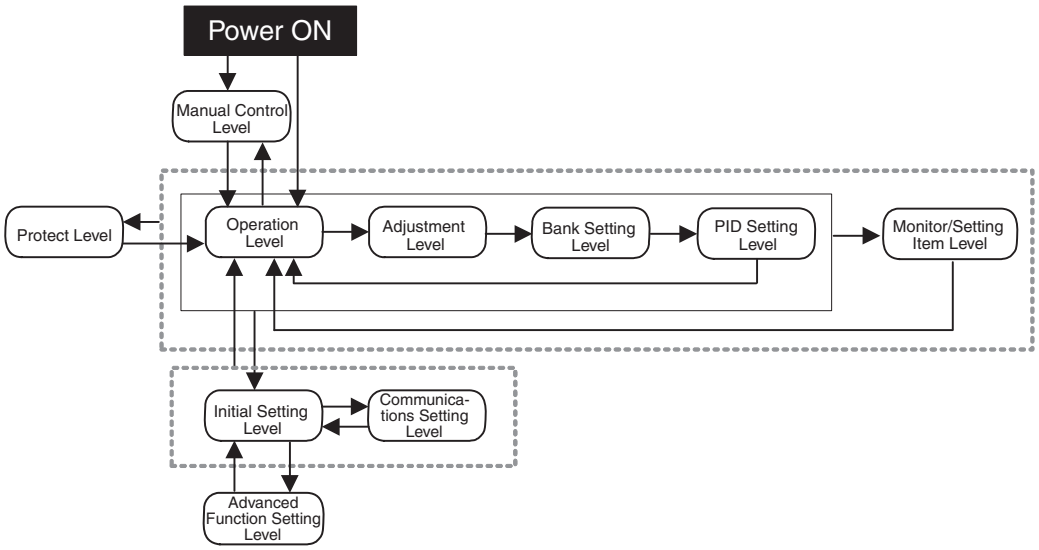






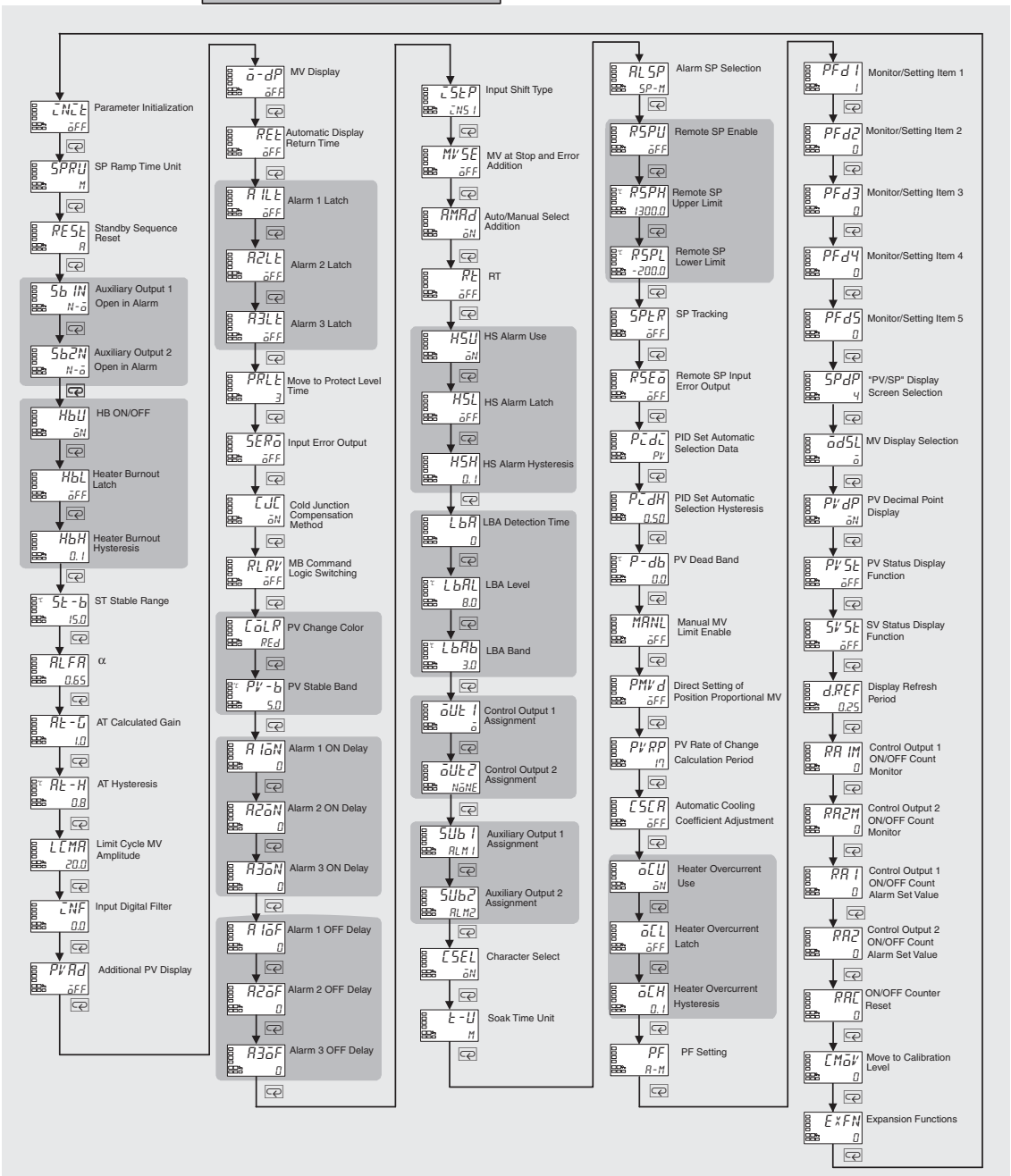
∗1. When the PF Setting parameter is set to A-M for a Controller with a PF Key (E5AN-H/E5EN-H).
∗2. When the PF Setting parameter is set to PFDP for a Controller with a PF Key (E5AN-H/E5EN-H).


Press the Key for at least 1 s.
Press the Key for at least 3 s.
Other than the Auto/Manual Switch display
Initial Setting Level
Press the Key less than 1 s.
Press the Key less than 1 s.
Protect Level
The time taken to move to the protect level can be adjusted by changing the "Move to protect level time" setting.
Communications Setting Level
Displayed only for models with communications. Changes are effective after cycling power or after a software reset.
Move to Protect Level: Displayed only when a password is set. Restricts moving to protect level.
Operation/Adjustment Protect: Restricts displaying and modifying menus in operation, adjustment, and manual control levels.
Initial Setting/ Communications Protect: This protect level restricts movement to the initial setting, communications setting, and advanced function setting levels.
Setting Change Protect: Protects changes to setups by operating the front panel keys.
PF Key Protect Restricts PF key operation (E5AN-H/E5EN-H only)
Parameter Mask Enable: Displayed only when a parameter mask is set.
Password to Move to Protect Level: Password setting
Protocol Setting: Switches between CompoWay/F (SYSWAY) and Modbus.
Communications Unit No.
Communications Baud Rate
CompoWay/F (SYSWAY) only
Communications Data Length
Communications Stop Bits
Communications Parity
Send Data Wait Time
Input Type
Scaling Upper Limit
Scaling Lower Limit
Decimal Point
For input type of analog
Temperature Unit °C, °F
For input type of temperature
SP Upper Limit
Limit the set point
SP Lower Limit
PID ON/OFF
Standard or Heating/Cooling
ST (Self-tuning)
For input type of temperature, standard control, or PID
Program Pattern
Valid Program Bank
When assigning PID or control output to ON/OFF output
Control Period (Heating)
Set the ON/OFF output cycle.
Control Period (Cooling)
Direct/Reverse Operation
Alarm 1 Type
Alarm 1 Hysteresis
Alarm 2 Type
Alarm 2 Hysteresis
Alarm 3 Type
Alarm 3 Hysteresis
Transfer Output Type
Linear output
Transfer Output Upper Limit
Transfer Output Lower Limit
Linear Current Output
Linear output
Bank Numbers Used
Event Input Assignment 1
Event Input Assignment 2
Event Input Assignment 3
Event Input Assignment 4
Closed/Floating
Motor Calibration
Travel Time
Extraction of Square Root Enable
Move to Advanced Function Setting Level: Displayed when initial setting/ communications protect is set to 0.
Move by setting password (–169).



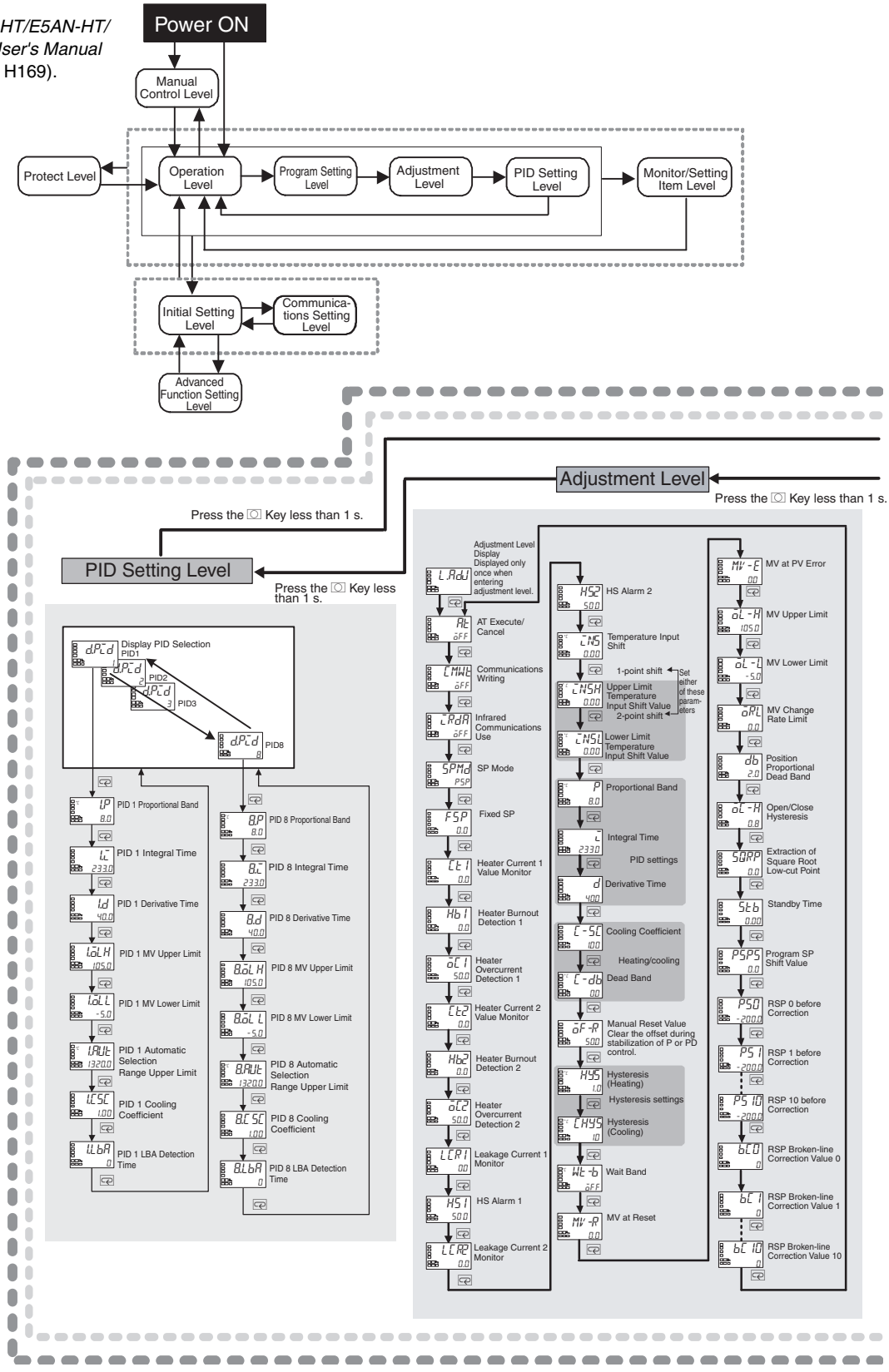
Press the ○ Key for at least 1 s.

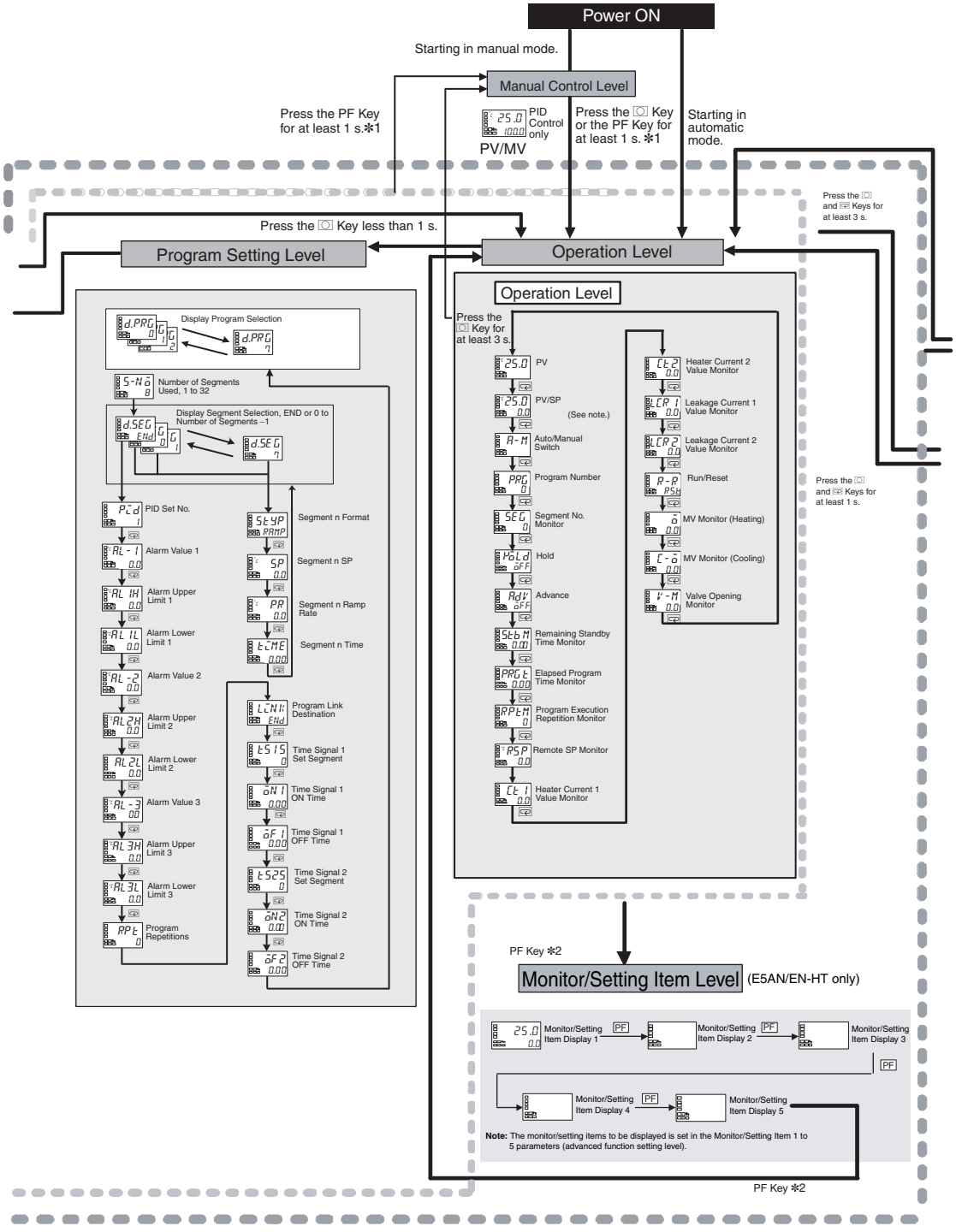
Advanced Function Setting Level



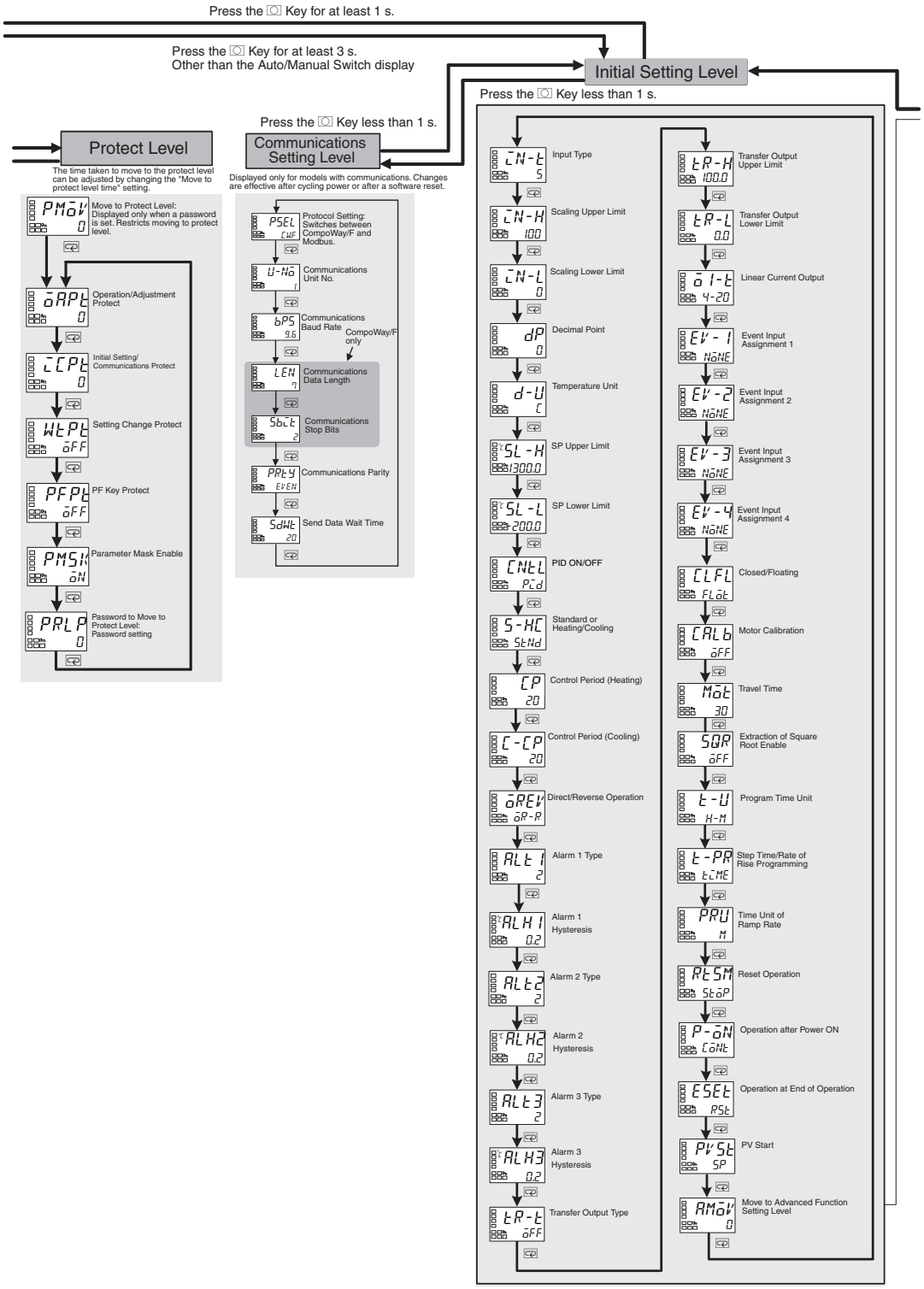
Programmable Type
E5CN-HT/E5AN-HT/E5EN-HT

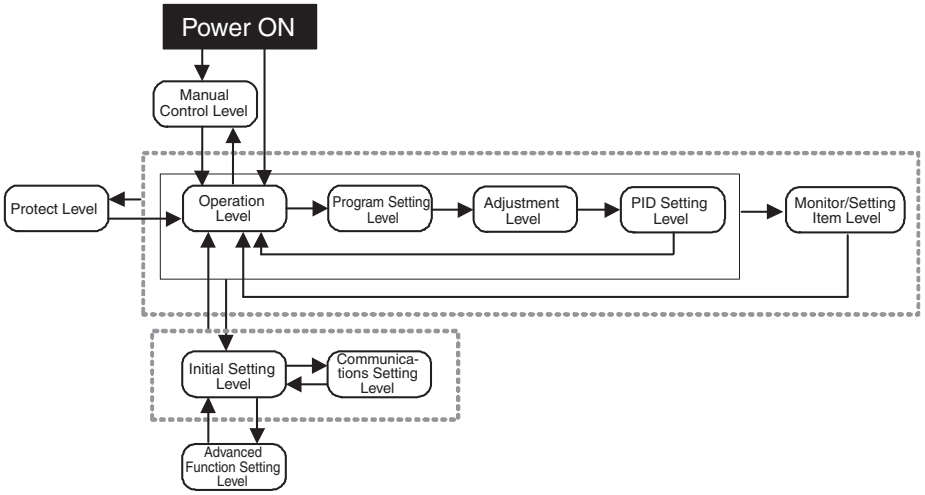
Some parameters are not displayed depending on the model of the Controller and parameter settings.
For details, refer to the *E5CN-HT/E5AN-HT/E5EN-HT Digital Controllers User's Manual Programmable Type* (Cat. No. H169).





*1. When the PF Setting parameter is set to A-M for a Controller with a PF Key (E5AN/EN-HT).
*2. When the PF Setting parameter is set to PFDP for a Controller with a PF Key (E5AN/EN-HT).


Press the ○ Key for at least 1 s.
Press the ○ Key for at least 3 s.
Other than the Auto/Manual Switch display
Initial Setting Level
Press the ○ Key less than 1 s.
Press the ○ Key less than 1 s.
Protect Level
The time taken to move to the protect level can be adjusted by changing the "Move to protect level time" setting.
Communications Setting Level
Displayed only for models with communications. Changes are effective after cycling power or after a software reset.
Move to Protect Level: Displayed only when a password is set. Restricts moving to protect level.
Operation/Adjustment Protect
Initial Setting/ Communications Protect
Setting Change Protect
PF Key Protect
Parameter Mask Enable
Password to Move to Protect Level: Password setting
Protocol Setting: Switches between CompoWay/F and Modbus.
Communications Unit No.
Communications Baud Rate
CompoWay/F only
Communications Data Length
Communications Stop Bits
Communications Parity
Send Data Wait Time
Input Type
Scaling Upper Limit
Scaling Lower Limit
Decimal Point
Temperature Unit
SP Upper Limit
SP Lower Limit
PID ON/OFF
Standard or Heating/Cooling
Control Period (Heating)
Control Period (Cooling)
Direct/Reverse Operation
Alarm 1 Type
Alarm 1 Hysteresis
Alarm 2 Type
Alarm 2 Hysteresis
Alarm 3 Type
Alarm 3 Hysteresis
Transfer Output Type
Transfer Output Upper Limit
Transfer Output Lower Limit
Linear Current Output
Event Input Assignment 1
Event Input Assignment 2
Event Input Assignment 3
Event Input Assignment 4
Closed/Floating
Motor Calibration
Travel Time
Extraction of Square Root Enable
Program Time Unit
Step Time/Rate of Rise Programming
Time Unit of Ramp Rate
Reset Operation
Operation after Power ON
Operation at End of Operation
PV Start
Move to Advanced Function Setting Level



Press the ○ Key for at least 1 s.

Advanced Function Setting Level